

TENDER FOR
PROVISION OF FULL HD VIDEO AND AUDIO SYSTEMS
ALONG
WITH SYSTEM INTEGRATION IN
MULTI-FUNCTION TRAINING FACILITY BUILDING
AT
INDIAN INSTITUTE OF TROPICAL METEOROLOGY,
DR. HOMI BHABHA ROAD, PASHAN,
PUNE – 411 008.

Volume 1
(TECHNICAL BID)

INDIAN INSTITUTE OF TROPICAL METEOROLOGY,
DR.HOMI BHABHA ROAD, PASHAN, PUNE-411 008

**TENDER FOR
PROVISION OF FULL HD VIDEO AND AUDIO SYSTEMS
ALONG
WITH SYSTEM INTEGRATION IN
MULTI-FUNCTION TRAINING FACILITY BUILDING AT
INDIAN INSTITUTE OF TROPICAL METEOROLOGY,
AT DR. HOMI BHABHA ROAD, PASHAN, PUNE-411 008.**

BID NO: C-050.34.II

NAME OF WORK : TENDER FOR PROVISION OF FULL HD VIDEO AND AUDIO SYSTEMS ALONG WITH SYSTEM INTEGRATION IN MULTI-FUNCTION TRAINING FACILITY BUILDING AT INDIAN INSTITUTE OF TROPICAL METEOROLOGY, DR.HOMI BHABHA ROAD, PASHAN, PUNE-411 008

PERIOD OF SALE OF BIDDING DOCUMENT : **FROM 26 Apr 2012 TO 17 May 2012**

TIME AND DATE OF PRE-BID CONFERENCE : **DATE: 4 May 2012 TIME 11.30 HOURS**

LAST DATE AND TIME FOR RECEIPT OF BIDS : **DATE. 17 May 2012 TIME 1230 HOURS**

TIME AND DATE OF OPENING OF TECHNICAL BIDS : **DATE. 17 May 2012 TIME 1500 HOURS**

PLACE OF OPENING OF TECHNICAL BID : INDIAN INSTITUTE OF TROPICAL METEOROLOGY, DR.HOMI BHABHA ROAD, PASHAN, PUNE-411 008

OFFICER INVITING BIDS : INDIAN INSTITUTE OF TROPICAL METEOROLOGY

COMPLETION PERIOD : 60 DAYS FORM THE DATE OF RECEIPT OF L.O.I.

**INVITATION FOR BID
(IFB)**

**NOTICE INVITING TENDER FOR
PROVISION OF FULL HD VIDEO AND AUDIO SYSTEMS ALONG WITH
SYSTEM INTEGRATION IN MULTI-FUNCTION TRAINING FACILITY
BUILDING AT
INDIAN INSTITUTE OF TROPICAL METEOROLOGY,
TWO COVER SYSTEM**

Tender Notice No. C-050.34.II dated 25 Apr 2012

Indian Institute of Tropical METEOROLOGY, Pune, Maharashtra is setting up a Multi Training Facility building at existing building Pashan, Pune, Maharashtra. Director Indian Institute of Tropical METEOROLOGY, Pune. Invites bid for FULL HD VIDEO AND AUDIO SYSTEMS ALONG WITH SYSTEM INTEGRATION works.

The Preferred Bidder would be selected through a **three stage Bidding Process**. A “**Three-Stage**” process would be followed for determining the Preferred Bidder i.e. there will be a separate pre-qualification stage for short listing of bidders. Selection of successful Bidder would be through evaluation of the Proposals which are to be submitted by prospective Bidders as described below:

- **STAGE -I :PRE-QUALIFICATION**
- **STAGE -II: TECHNICAL OFFER**
- **STAGE -III: FINANCIAL OFFER**

1.0 Salient Features

Name of Work	PROVISION OF FULL HD VIDEO AND AUDIO SYSTEMS ALONG WITH SYSTEM INTEGRATION IN MULTI FUNCTION TRAINING FACILITY BUILDING AT INDIAN INSTITUTE OF TROPICAL METEOROLOGY
Period of Completion	60 Days from the date of receipt of LOI

1.1 Schedule Of Events

Tender documents can be purchased from the office of Director, Indian Institute of Tropical METEOROLOGY, Dr. Homi Bhabha Road, NCL post, Pashan Pune – 411008 .INDIA

a	Cost of Tender Documents (Non – Refundable)	Rs. 1000/- (Rupees One Thousand only) by Demand Draft drawn from any Nationalized or Scheduled Banks in India payable at Pune in favour of The Director, Indian Institute of Tropical METEOROLOGY, Dr. Homi Bhabha Road, NCL post, Pashan, Pune – 411 008, INDIA
b	Period of Issue of Tender Documents	26 Apr 2012 to 17 May 2012
c	Earnest Money Deposit (EMD)	Rs.4,00,000/- by way By Irrevocable Bank Guarantee from any Nationalized or Scheduled Banks in India.and in favour of The The Director, Indian Institute of Tropical METEOROLOGY, Dr. Homi Bhabha Road, NCL post, Pashan, Pune – 411 008, INDIA valid for (or) By Irrevocable Bank Guarantee from any Nationalized or Scheduled Banks in India.
d	Pre-Bid Meeting	4 May 2012 TIME 11.30 HOURS
e	Last date for submission of bids	17 May 2012 TIME 1230 hrs Bids to be submitted on or before the mentioned time and date at "PERSONNEL SECTION" (Dispatch) Indian Institute of Tropical METEOROLOGY, Dr. Homi Bhabha Road, NCL post, Pashan, Pune – 411 008 .INDIA
f	Opening of Stage-I & II – Pre-Qualification and Technical Offer	17 May 2012 TIME 1500 hrs
g	Opening of Stage-III – Financial Offer	Shall be intimated to the technically qualified bidders.

* The above dates are final and no further extension shall be given.

* Only one set of document will be issued. Contractors have to take additional copies.

1. The Director, Indian Institute of Tropical METEOROLOGY, reserves the right to accept/reject any one /all the tenders without assigning any reason thereof.

COMPUTER ENGINEER
FOR DIRECTOR,

Definitions

Terms which are defined in the Contract Data are not defined in the Conditions of Contract but keep their defined meanings. Capital initials are used to identify defined terms.

The **Adjudicator** is the person appointed jointly by the Employer and the Contractor to resolve disputes in the first instance. The name of the Adjudicator is defined in the Contract Data.

Bill of Quantities means the priced and completed **Bill of Quantities** forming part of the Bid.

Compensation Events are those defined in Clause 37 of Conditions of Contract (Section 4).

The **Completion Date** is the date of completion of the Works as certified by the Architect and IITM Authorities in accordance with Sub Clause 45.1 of Conditions of Contract (Section 4).

The **Contract** is the contract between the Employer and the Contractor to execute, complete and maintain the Works. It consists of the documents listed in Clause 2.3 of Conditions of Contract (Section 4).

The **Contractor** is a person or corporate body who's Bid to carry out the Works has been accepted by the Employer.

The **Contractor's Bid** is the completed Bidding document submitted by the Contractor to the Employer.

The **Contract Price** is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Days are calendar days; **months** are calendar months.

A Defect is any part of the Works not completed in accordance with the Contract.

Defects Liability Period is the period named in the Contract Data and calculated from the Date of handing over of site to the Institute.

The **Employer** is the party who will employ the Contractor to carry out the Works. In this contract The Managing Director, Indian Institute of Tropical METEOROLOGY, Dr. Homi Bhabha Road, NCL post, Pashan, Pune. is the Employer

The **Architect** shall mean the Consultants engaged by the Employer.

The Initial Contract Price is the Contract Price listed in the Employer's Letter of Acceptance.

Drawings mean the employer's drawings of the works included in the contract and any variations to such drawings given by an Architect.

Party means either employer or contractor.

Country means the country in which the site is located.

Employer's Liabilities means those mentioned in sub clause 10.1 of Conditions of Contract (Section 4).

Force Majeure means an exceptional events or circumstance which is beyond a Party's control, which such Party could not reasonably have provided against before entering in to the contract; which, having arisen, such party could not reasonably have avoided or overcome; and, which is not substantially attributable to the other party.

The **Intended Completion Date** is the date on which it is intended that the Contractor shall complete the Works.

Materials are all supplies, including consumables, used by the contractor for incorporation in the Works.

The **Site** is the area defined as such in the Contract Data.

Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Architect.

The **Start Date** it is the date from the date of receipt of LOI.

A **Variation** is an instruction given by the Architect with the approval of IITM authorities which varies the Works.

SECTION 1: INSTRUCTIONS TO BIDDERS (ITB)

&

TERMS AND CONDITIONS

Section 1: Instructions to Bidders & Terms and Conditions

Table of Clauses

A. General	Page No.	D.	Submission of Bids	Page No.
1. Scope of Bid	10	10	18. Sealing and Marking of Bids	16
2. Source of Funds	10	10	19. Deadline for Submission of Bids	17
3. Eligible Bidders	10	10	20. Late Bids	17
4. Qualification of the Bidder	10	10	21. Modification & Withdrawal of Bids	17
5. One Bid per Bidder	13	13	22. Check List – Pre-Qualification	18
6. Cost of Bidding	13	13	23. Check List – Technical Offer	19
7. Site Visit	13	13	24. Check List – Financial Offer	19
B. Bidding Documents			E. Bid Opening and Evaluation	
8. Content of Bidding Documents	13		25. Bid Opening	19
9. Clarification of Bidding Documents	13	23.	26. Process to be Confidential	20
10. Amendment of Bidding Documents	14	24.	27. Clarification of Bids	20
			28. Examination of Bids and Determination of Responsiveness	20
C. Preparation of Bids			29. Correction of Errors	20
11. Language of Bid	14		30. Evaluation and Comparison of Bids	21
12. Documents Comprising the Bid	14		F. Award of Contract	
13. Bid Prices	14		31. Award Criteria	21
14. Currencies of Bid and Payment	14		32. Employer's Right to Accept any Bid and to Reject any or all Bids	21
15. Bid Validity	14		33. Notification of Award	21
16. Bid Security	15		34. Performance Security	22
17. Format and Signing of Bid	16		35. Advance Payment and Security	22
			36. Corrupt or Fraudulent Practices	22

A. General

1.0 Scope of Bid

- 1.1 On behalf INDIAN INSTITUTE OF TROPICAL METEOROLOGY, The Director, INDIAN INSTITUTE OF TROPICAL METEOROLOGY, DR.HOMI BHABHA ROAD, PASHAN, PUNE-411 008, India invites bids for Provision of FULL HD VIDEO AND AUDIO SYSTEMS ALONG WITH SYSTEM INTEGRATION IN MULTI-FUNCTION TRAINING FACILITY BUILDING at Indian Institute of Tropical METEOROLOGY, Dr. Homi Bhabha Road, NCL post, Pashan, Pune – 411 008 .INDIA
- 1.2 The successful bidder will be expected to complete the works by the intended completion date specified in the Contract data.

2.0 Source of Fund: INSTITUTE OF TROPICAL METEOROLOGY.

3.0 Brief description of bidding process

- 3.1 The selection of the Preferred Bidder for this project is envisaged through a three-stage process Preceded by a Pre-Qualification.
- **STAGE -I :PRE-QUALIFICATION**
 - **STAGE -II: TECHNICAL OFFER**
 - **STAGE -III: FINANCIAL OFFER**
- 3.2 The selection of Bidder is envisaged through in 3 (three) steps in line with the Evaluation process Described in Section I – ITB.
- **The Stage – I** involves opening and evaluation of Pre-Qualification Criteria.
 - The **Stage - II** involves opening and evaluation of **Technical Offers** of Bidders qualified at stage – I against the criteria laid down in Clause 5.3. Financial Offers of Bidders, who do not qualify this step, will be returned unopened.
 - The **Stage – III-** involves opening and evaluation of **Financial Offers** of those Bidders who have been qualified in stage - II.

4.0 Eligible Bidders

- 4.1 This Invitation for Bids is open to all reputed well established and experienced contractors, who satisfy the qualifying criteria stipulated under Qualification Criteria in Clause 4
- 4.2 Bidders shall not be under a declaration of ineligibility for corrupt and fraudulent practices issued by Government in accordance with sub-clause 33.1.

5.0 Qualification of the Bidder

- 5.1 All bidders shall be provided in Section 2 Forms of Bid and Qualification Information, a preliminary description of the proposed work method and schedule, including drawings and charts, as necessary.
- 5.2 'Bids from Joint ventures are not acceptable'.

5.3 PRE-QUALIFICATION (To be Enclosed in Envelope-I)

Qualification Criteria:

S. No	Eligibility Criteria	Bidder Compliance
1	Bidder must enclose an EMD Rs.4,00,000/- by Demand Draft, drawn from any Nationalized or Scheduled Banks in India payable at Pune in favour of The Director, Indian Institute of Tropical METEOROLOGY, Dr. Homi Bhabha Road, NCL post, Pashan, Pune – 411008, INDIA (or) By Irrevocable Bank Guarantee from any Nationalized or Scheduled Banks in India.	Should enclose the relevant Document.
2	The bidder should be a company, registered under the Indian Companies Act 1956 and should have been in existence for minimum period of ten years. Bidder shall be wholly liable for the project and shall be single point of contact for this project.	Should enclose the Company Registration Certificate issued by ROC and Valid Proof like Performance Certificates for existing in similar business since last ten years
3	The bidder shall be registered under the Sales Tax, Service Tax and relevant registration certificate shall be enclosed.	Enclose the registration certificate from the Sales Tax and Service Tax department
4	The bidder shall be an Income Tax Assesses	Should enclose photo copy of the PAN Card
5	The Bidder should have ISO 9001: 2000/2008 Certificate.	Valid ISO 9001:2000/2008 certificate to be submitted.
6	Bidder should be an established System / Solution Integrator or an Original Equipment Manufacturer experienced in Supply and Maintenance of Audio Visual and Related Systems and should have completed installation of at least 3 similar work orders during the last 5 years in India (preferably for Government department /PSU / Central/ State / Defence Establishments). The total worth of the 3 projects should be of Rs. 6 Crores or above. Additionally the Bidder should have experience of minimum ten years in the field of AV.	At least 3 Work Orders of total worth of Rs. 6 Crores or above. Bidders to submit copy of the work orders along with customer contact details. The Bidder should also provide documentary proof for being in the AV field for the last ten years as per the format given in Section 2 of this document.
7	The Bidder should have positive net worth and turnover of minimum Rs. 20 crores average from Indian Operations for last three Financial Years ending on 31.03.2011	Chartered Accountant certificate for Net worth and Copy of the audited profit & loss account of the company showing turnover of the company for the last three years up to 31.03.2011.
8	A Bidder that is under a declaration of ineligibility by the Authority or any other Authority in India such as A. Govt. of India / Govt. of India undertaking B. Any other state Government C. Defence Establishments / PSU at the date of submission of the offer or thereafter shall be disqualified.	Should enclose an undertaking letter as per the format given in Section 2 of this document.

9	The Bidder shall submit a Power of Attorney/ Board Resolution, authorizing the signatory of the offer and to submit the Bidder, along with submission of offer. Details of documentation and formats required for various parts of the offer are provided in Section 2 of this document.	Should enclose Power of Attorney/ Board Resolution as per the format given in Section 2 of this document.
10	Bidding entities shall give an undertaking that in the event of award of contract the project shall not be sub-contracted further in its entirety. The bidding entity shall be solely responsible for the execution of the project	Should enclose an undertaking letter as per the format given in Section 2 of this document.
11	The bidder should produce Banker's Solvency Certificate or Revenue Solvency Certificate for a minimum value of Rs 1 Crore as per the format given in Section 2 of this document	Should enclose the relevant Document.

5.4. ELIGIBILITY CRITERIA (To be Enclosed in Technical Offer Envelope-II)

S. No.	Eligibility Criteria	Bidder Compliance
1	Bidder to enclose detailed connectivity diagram for integrating all the items mentioned in the BoQ along with Brochures and Data Sheets of all the products	Connectivity Diagram and Data Sheets
2	Bidder to enclose the Technical Compliance for all the Products as per the tender specifications with Deviation Statements	Technical Compliance / Deviation Statements as per the format given in Section 2 of this document.
3	<p>The bidder should submit valid authorization letter from each of the OEMs for FULL HD VIDEO AND AUDIO SYSTEMS ALONG WITH SYSTEM INTEGRATION. Confirming the following.</p> <p>a) Manufacturer's Authorization letter in the format prescribed for all the Equipments.</p> <p>b) Confirm that the products meet the Technical & Functional Requirements as specified in the tender.</p> <p>c) OEM letter stating that the quoted product is of Latest version/specification and not the end of life product and should guarantee support including spares for the quoted products for minimum period of 5 years.</p> <p>d) The bidder should give a detailed brief of the company along with organization structure)</p> <p>If any of the above parameters are not complied with, the bid shall be summarily rejected for further evaluation.</p>	Should enclose the Authorization letter from OEMs as per the format given in Section 2 of this document.

5.5 Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

- made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or

- Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc.; and/or
- participated in the previous bidding for the same work and had quoted unreasonably high bid prices and could not furnish rational justification to the employer.

5.6 Each bidder shall submit only one bid for one contract.

6.0. Cost of Bidding

6.1 The bidder shall bear all costs associated with the preparation and submission of his Bid, and the Employer will in no case be responsible and liable for those costs.

7.0 Site visit

7.1 The Bidder, at the Bidder's own responsibility and risk is encouraged to visit and examine the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.

B. Bidding Documents

8.0 Content of Bidding Documents

8.1 The set of bidding documents comprises the documents listed in the table below and addenda issued in accordance with Clause 10:

Invitation for Bids	Section	
	1	Instructions to Bidders
	2	Forms of Bid and Qualification information
	3	Forms of Securities
	4	Conditions of Contract
	5	Technical Specifications
	6	Bills of Quantities
	7	Approved / Accepted Makes

8.2 Bidding documents supplied should be completed and returned with the bid.

9.0. Clarification of Bidding Documents

9.1 A prospective bidder requiring any clarification of the bidding documents may notify the Employer in writing.

9.2 Pre-bid meeting

9.2.1 The bidder or his official representative is invited to attend a pre-bid meeting,

9.2.2 The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

9.2.3 The bidder is requested to submit any questions in writing or by cable to reach the Employer not later than one day before the pre bid meeting.

9.2.4 Minutes of the meeting, including the text of the questions raised (without identifying the source of enquiry) and the responses given, will be transmitted without delay to all purchasers of the bidding documents. Any modification of the bidding documents listed in Sub-Clause 8.1 which may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to Clause 10 and not through the minutes of the pre-bid meeting.

9.2.5 Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder. However bidder must attend the pre-bid meeting to get the clear understanding about the project requirements.

10.0. Amendment of Bidding Documents

10.1 Before the deadline for submission of bids, the Employer may modify the bidding documents by issuing addenda.

10.2 Any addendum thus issued shall be part of the bidding documents and shall be communicated in writing to all the purchasers of the bidding documents. Prospective bidders shall acknowledge receipt of each addendum in writing to the Employer.

10.3 To give prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer shall extend as necessary the deadline for submission of bids, in accordance with Sub-Clause 18.1 below.

C. Preparation of Bids

11.0 Language of the Bid

11.1 All documents relating to the bid shall be in the English language.

11.2 Documents comprising the Bid

11.2.1 The bid submitted by the bidder shall comprise the following:

- **PRE-QUALIFICATION**
- **TECHNICAL OFFER**
- **FINANCIAL OFFER**

12.0 Bid Prices

12.1 The contract shall be for the whole works as described in Sub-Clause 30.1 of Conditions of Contract (Section 2) based on the priced Bill Quantities submitted by the Bidder.

12.2 The bidder shall fill in rates and prices and line item total (both in figures and words) for all items of the Works described in the **Bill of Quantities** along with total bid price (both in figures and words). *Items for which no rate or price is entered by the bidder will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities.* Corrections, if any, shall be made by crossing out, initialing, dating and rewriting.

12.3 All duties, taxes, and other levies payable by the contractor under the contract, or for any other cause shall be included in the rates, prices and total Bid Price submitted by the Bidder. If there are any provisions for the Institute to avail exemption of duties, taxes and other levies the same can be included in the Financial Offer.

12.4 The rates and prices quoted by the bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of Clause 29 of the Conditions of Contract.

12.5 The rates of electrical part of the work shall include guarantee for 2 years with spares and labour.

13.0 Currencies of Bid and Payment

13.1 The unit rates and the prices shall be quoted by the bidder entirely in Indian Rupees.

14.0 Bid Validity

14.1 Bids shall remain valid for a period not less than one hundred & twenty days after the deadline date for bid submission specified in Clause 18. A bid valid for a shorter period shall be rejected by the Employer as non-responsive.

14.2 In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the bidders may extend the period of validity for a specified additional period. The request and the bidders' responses shall be made in writing or by cable. A bidder may refuse the request without forfeiting his bid security.

14.3 Bid evaluation will be based on the bid prices only.

15.0 Bid Security

15.1 The Bidder shall furnish, as part of his Bid, a Bid security (EMD) in the amount as shown in column 4 of the table of IFB for this particular work. This bid security shall be in favor of the **DIRECTOR INDIAN INSTITUTE OF TROPICAL METEOROLOGY, DR.HOMI BHABHA ROAD, PASHAN, PUNE-411 008**. And may be in one of the following forms:

- Bank Guarantee from nationalized09225647721 / scheduled bank located in India in favour of. **DIRECTOR INDIAN INSTITUTE OF TROPICAL METEOROLOGY, DR. HOMI BHABHA ROAD, PASHAN, PUNE-411 008. (INDIA)**

15.2 Bank guarantees issued as surety for the bid shall be valid for 60 days beyond the validity of the bid.

15.3 Any bid not accompanied by an acceptable Bid Security and not secured as indicated in Sub-Clauses 16.1 shall be rejected by the Employer as non-responsive.

15.4 The Bid Security of unsuccessful bidders will be returned after award of work to successful bidder.

15.5 The Bid Security of the successful bidder will be discharged when the bidder has signed the Agreement and furnished the required Performance Security.

15.6 The Bid Security may be forfeited

- (a) If the Bidder withdraws the Bid after Bid opening during the period of Bid validity;
- (b) If the Bidder does not accept the correction of the Bid Price, pursuant to Clause 26; or
- (c) In the case of a successful Bidder, if the Bidder fails within the specified time limit to
 - (i) Sign the Agreement; or
 - (ii) Furnish the required Performance Security.

16.0 Format and Signing of Bid

16.1 The Bid shall contain no alterations or additions, except those to comply with instructions issued by the Employer, or as necessary to correct errors made by the bidder, in which case such corrections shall be initialed by the person or persons signing the bid.

D. Mode of Submission of Bids

17.0 Submission of bids shall be in accordance to the instructions given in the Table below:

Envelope 1: Pre-Qualification	The envelope containing the EMD along with Certificates and documents asked for in Clause 5.3 of Pre-Qualification should be enclosed. Failure to submit any of the above information shall result in summary rejection of the bid and shall not be considered for further evaluation. The Envelope shall be sealed and superscribed " Pre-Qualification – Provision for providing FULL HD VIDEO AND AUDIO SYSTEMS ALONG WITH SYSTEM INTEGRATION ". This envelope should not contain any Technical or Financial details relating to the bid, in either explicit or implicit form.
Envelope 2: Technical	The Technical offer shall be prepared in accordance with the requirements specified in this Section-I and in the formats prescribed in this Section 2 including the eligibility criteria as per clause 5.4 of this tender document. The envelope shall be sealed and superscribed " Technical offer – Provision for providing FULL HD VIDEO AND AUDIO SYSTEMS ALONG WITH SYSTEM INTEGRATION " on the top right hand corner and addressed to The Director, Indian Institute of Tropical METEOROLOGY , at the address specified in this document. This envelope should not contain any Commercials, in either explicit or implicit form, in which case the bid will be rejected. The technical offer shall be submitted in a printed copy of the technical offer and a soft copy on compact discs (CDs) with all the contents of the technical offer. The words " Technical offer – Provision for providing FULL HD VIDEO AND AUDIO SYSTEMS ALONG WITH SYSTEM INTEGRATION " shall be written in indelible ink on the CD. The Hard Copy shall be signed by the authorized signatory on all the pages before being put along with the CD in the envelope and sealed. In case of discrepancies between the information in the printed version and the contents of the CDs, the printed version of the technical offer will prevail and will be considered as the offer for the purpose of evaluation.
Envelope 3: Financial Offer	The Financial Offer will be submitted only in the printed format and the bidder should submit only one copy of the Financial Offer as per the forms provided in Section2. All the pages in the financial response should be on the letter head of the Bidder with a seal and signature of the authorized signatory of the Bidder. The envelope shall be sealed and superscribed " Financial offer – Provision for providing FULL HD VIDEO AND AUDIO SYSTEMS ALONG WITH SYSTEM INTEGRATION " (Not to be opened with the Technical Offer) at the top right hand corner and addressed to The Director, Indian Institute of Tropical METEOROLOGY at the address specified in this document

Envelope 4	All the above 3 envelopes along with the cover letter, should be put in envelope 4 which shall be properly sealed. The outside of the envelope must clearly indicate the name of the Project (“ providing FULL HD VIDEO AND AUDIO SYSTEMS ALONG WITH SYSTEM INTEGRATION ”) and addressed to The Director, Indian Institute of Tropical METEOROLOGY at the address specified in this document.
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The inner and outer envelopes / cover shall

- (a) Be addressed to the Employer at the following address:

The Director, Indian Institute of Tropical METEOROLOGY, Dr. Homi Bhabha Road, NCL post, Pashan, Pune– 411008 .INDIA so as to reach on or before 17 May 2012 TIME 1230 Hours.

- (b) Bear the following identification:

- Bid for[name of contract]
- Bid Reference No.....[insert number]
- DO NOT OPEN BEFORE.....[time and date for bid opening, per Clause 22]

17.1 If the outer envelope is not sealed and marked as above, the Employer will assume no responsibility for the misplacement or premature opening of the bid.

17.2 Bidder will be supplied with one set of Bid Document the Bidder should treat this as **Original**.

18.0 Deadline for Submission of the Bids

18.1 Bids must be received by the Employer at the address specified above. In the event of the specified date for the submission of bids declared a holiday for the Employer, the Bids will be received up to the appointed time on the next working day.

19.0 Late Bids

19.1 Any Bid received by the Employer after the deadline prescribed in Clause 20 will not be considered for evaluation.

20.0 Modification and Withdrawal of Bids

20.1 Bidders may modify or withdraw their bids by giving notice in writing before the deadline prescribed in Clause 19.

20.2 Each Bidder's modification or withdrawal notice shall be prepared, sealed, marked, and delivered in accordance with Clause 17 & 18, with the outer and inner envelopes additionally marked "**MODIFICATION**" or "**WITHDRAWAL**", as appropriate.

20.3 No bid may be modified after the deadline for submission of Bids.

20.4 Withdrawal or modification of a Bid between the deadline for submission of bids and the expiration of the original period of bid validity specified in Clause 15.1 above or as extended pursuant to Clause 15.2 may result in the forfeiture of the Bid security pursuant to Clause 15.6

20.5 Bidders may offer discounts to, or modify the prices of their Bids only by submitting Bid modifications in accordance with this clause, or included in the original Bid submission.

21.1 Check List - Pre-Qualification

S. No.	ITEM	COMPLIANCE
1	Have you purchased tender Document paying Rs.1,000/- if not have you enclosed Demand Draft for the said amount?	YES/NO
2	Have you enclosed EMD as per Form V given in Section 2	YES/NO
3	Details of mode of EMD Payment	Demand Draft/Bank Guarantee Number:
4	Have you enclosed the incorporation of company certificate from ROC as proof that the company is in existence for ten years and Valid Proof like Performance Certificates for existing in similar business since last ten years	YES/NO
5	Have you enclosed photocopy of the Audited Balance Sheet of your company for last three years?	YES/NO
6	Have you enclosed Registration certificate from the Sales Tax and Service Tax department?	YES/NO
7	Have you enclosed photo copy of the PAN Card?	YES/NO
8	Have you enclosed photo copy of the ISO 9001: 2000/2008 Certificate?	YES/NO
9	Have you enclosed Letter Comprising the Bid as per Form I given in Section 2	YES/NO
10	Have you enclosed power of attorney/ Board Resolution as per Form –II given in Section 2	YES/NO
11	Have you enclosed Undertaking regarding Ineligibility / Blacklist / Fraudulent Activities as per Form III given in Section 2	YES/NO
12	Have you enclosed Undertaking regarding Sub-Contracting as per Form IV given in Section 2	YES/NO
13	Have you enclosed the Solvency Certificate issued by the Bank as per Form VI given in Section 2	YES/NO
14	Have you enclosed the Financial Information for the previous 5 years as per Form VII given in Section 2	YES/NO
15	Have you enclosed details of Previous project experience and proof (Purchase Order & Customer Details) for the same as per Form VIII given in Section 2	YES/NO

16	Have you enclosed duly signed tender copy?	YES/NO
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21.2 Check List - Stage - I Technical Offer

S. No.	ITEM	COMPLIANCE
1	Have you enclosed detailed document on your understanding of the objectives, approach, Design, commissioning and maintenance of Full HD Video and Audio Systems along with System Integration with miles stones and time line?	YES/NO
2	Have you enclosed OEM Authorization Letters for all the Equipments as per Form components as per Form X given in Section 2	YES/NO
3	Have you enclosed Brochures and Data Sheets of all the products?	YES/NO
4	Have you enclosed the Technical Compliance for all the Products as per the tender specifications with Deviation Statements as per Form IX given in Section 2	YES/NO

21.3 Check List - Stage - II Financial Offer

S. No.	ITEM	COMPLIANCE
1	Have you submitted the Financial Offer as per the Form XI given in Section 2	YES/NO

E. Bid Opening and Evaluation

22.0 Bid Opening

22.1 The selection of the Preferred Bidder for this project is envisaged through two-stage process preceded by a Pre-Qualification.

1. STAGE -I :PRE-QUALIFICATION
2. STAGE -II: TECHNICAL OFFER
3. STAGE -III: FINANCIAL OFFER

22.2 The Employer will open all the Pre-Qualification Bids received (except those received late), including modifications made pursuant to Clause 20, in the presence of the Bidders or their representatives who choose to attend on 17 May 2012 TIME 1500 hrs at Indian Institute of Tropical METEOROLOGY, Dr.Homi BHABHA Road, Pashan, PUNE-411 008 In the event of the specified date of Bid opening being declared a holiday for the Employer, the Bids will be opened at the appointed time and location on the next working day.

22.3 Envelopes marked "**WITHDRAWAL**" shall be opened and read out first. Bids for which an acceptable notice of withdrawal has been submitted pursuant to Clause 20 shall not be opened. Subsequently all envelopes marked "Modification" shall be opened and the submissions therein read out in appropriate detail.

22.4 The Bidders' names, the Bid prices, the total amount of Bid, any discounts, Bid modifications and withdrawals, the presence or absence of Bid security, and such other details as the Employer may

consider appropriate, will be announced by the Employer at the opening. Bids [and modifications] sent pursuant to Clause 20 that are not opened and read out at bid opening will not be considered for further evaluation regardless of the circumstances. Late and withdrawn bids will not be considered for evaluation.

22.5 The Employer shall prepare minutes of the Bid opening, including the information disclosed to those present in accordance with Sub-Clause 22.3.

23.0 Process to Be Confidential

23.1 Information relating to the examination, clarification, evaluation, and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any effort by a Bidder to influence the Employer's processing of Bids or award decisions may result in the rejection of his Bid.

24.0 Clarification of Bids

24.1 To assist in the examination, evaluation, and comparison of Bids, the Employer may, at his discretion, ask any Bidder for clarification of his Bid, including breakdowns of the unit rates. The request for clarification and the response shall be in writing or by cable, but no change in the price or substance of the Bid shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids in accordance with Clause 26.

24.2 Subject to sub-clause 24.1, no Bidder shall contact the Employer on any matter relating to its bid from the time of the bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Employer, it should do so in writing.

24.3 Any effort by the Bidder to influence the Employer in the Employer's bid evaluation, bid comparison or contract award decisions may result in the rejection of the Bidders' bid.

25.0 Examination of Bids and Determination of Responsiveness

25.1 Prior to the detailed evaluation of Bids, the Employer will determine whether each Bid (a) meets the eligibility criteria defined in Clause 5.3, (b) has been properly signed; (c) is accompanied by the required securities and; (d) is substantially responsive to the requirements of the Bidding documents.

25.2 A substantially responsive Bid is one which confirms to all the terms, conditions, and specifications of the Bidding documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any substantial way, inconsistent with the Bidding documents, the Employer's rights or the Bidder's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.

25.3 If a Bid is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation or reservation.

26.0 Correction of Errors

26.1 Bids determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer **as follows**:

(a) Where there is a discrepancy between the rates in figures and in words, the rate in words will govern; and

(b) Where there is a discrepancy between the unit and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern.

26.2 The amount stated in the Bid will be adjusted by the Employer in accordance with the above procedure for the correction of errors and, with the concurrence of the Bidder, shall be considered

as binding upon the Bidder. If the Bidder does not accept the corrected amount the Bid will be rejected, and the Bid security may be forfeited in accordance with Sub-Clause 15.6 (b).

27.0 Evaluation and Comparison of Bids

- 27.1** The Employer will evaluate and compare only the Bids determined to be substantially responsive in accordance with Clause 25.
- 27.2** In evaluating the Bids, the Employer will determine for each Bid the evaluated Bid Price by adjusting the Bid Price as follows:
- (a) Making any correction for errors pursuant to Clause 26; or
 - (b) Making an appropriate adjustments for any other acceptable variations, deviations; and
 - (c) Making appropriate adjustments to reflect discounts or other price modifications offered in accordance with Sub Clause 20.5.
- 27.3** The Employer reserves the right to accept or reject any variation, deviation, or alternative offer. Variations, deviations, and alternative offers and other factors which are in excess of the requirements of the Bidding documents or otherwise result in unsolicited benefits for the Employer shall not be taken into account in Bid evaluation.
- 27.4** The estimated effect of the price adjustment conditions under Clause 29 of the *Conditions of Contract*, during the period of implementation of the Contract, will not be taken into account in Bid evaluation.
- 27.5** If the Bid of the successful Bidder is seriously unbalanced in relation to the Architect's estimate of the cost of work to be performed under the contract, the Employer may require the Bidder to produce detailed price analysis for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analysis, the Employer may require that the amount of the performance security set forth in Clause 31 be increased at the expense of the successful Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract.

F. Award of Contract

28.0 Award Criteria

- 28.1** Subject to Clause 29, the Employer will award the Contract to the Bidder whose Bid has been determined to be substantially responsive to the Bidding documents and who has offered the lowest evaluated Bid Price, provided that such Bidder has been determined to be (a) eligible in accordance with the provisions of Clause 4 and qualified in accordance with the provisions of Clause 5.

29.0 Employer's Right to accept any Bid and to reject any or all Bids

- 29.1** Notwithstanding Clause 28, the Employer reserves the right to accept or reject any Bid, and to cancel the Bidding process and reject all Bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Employer's action.

30.0 Notification of Award and Signing of Agreement

- 30.1** The Bidder whose Bid has been accepted will be notified of the award by the Employer prior to expiration of the Bid validity period by cable, telex or facsimile confirmed by registered letter. This letter (hereinafter and in the *Conditions of Contract* called the "Letter of Acceptance") will state the sum that the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price").
- 30.2** The notification of award will constitute the formation of the Contract, subject only to the furnishing Of a performance security in accordance with the provisions of Clause 31.
- 30.3** The Agreement will incorporate all agreements between the Employer and the successful Bidder. It

will be signed by the successful bidder within 28 days following the notification of award along with the Letter of Acceptance.

- 30.4** Upon the furnishing by the successful Bidder of the Performance Security, the Employer will promptly notify the other Bidders that their Bids have been unsuccessful.

31.0 Performance Security

- 31.1** Within 15 days of receipt of the Letter of Acceptance, the successful Bidder shall deliver to the Employer a Performance Security in any of the forms given below for an amount equivalent to 5% of the Contract price plus additional security for unbalanced Bids in accordance with Clause 27.5 of ITB and Clause 52 of Conditions of Contract:

- a bank guarantee in the form given in Section 3; or

Demand draft/Bank Guarantee, from nationalized / scheduled bank located in India in favour of **DIRECTOR**, INDIAN INSTITUTE OF TROPICAL METEOROLOGY, DR.HOMI BHABHA ROAD, PASHAN, PUNE-411 008.

- 31.2** Failure of the successful bidder to comply with the requirements of sub-clause 31.1 shall constitute a breach of contract, cause for annulment of the award, forfeiture of the bid security and any such other remedy the Employer may take under the contract, and the Employer may resort to awarding the contract to the next ranked bidder.

32.0 Advance Payment and Security

- 32.1** No advance payment will be made.

- 32.2** Running bill payment will be made towards completed work; amount is not less than Rs. 35 Lakhs towards completed work, 5% amount will be retained from each running bill. Retention amount will be released after defect liability period after certification of work by PMC, Architect and Institutes authorities.

33.0 Corrupt or Fraudulent Practices

- 33.1** The Employer requires that Bidders, Suppliers, Contractors, and Consultants observe the highest standard of ethics during the procurement and execution of such contracts. In pursuit of this policy, the Employer

- (a) Defines, for the purposes of this provision, the terms set forth below as follows:

- (i) "Corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;
- (ii) "Fraudulent practice" means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;
- (iii) "Collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of the employer, designed to establish bid prices at artificial, non competitive levels.
- (iv) "Coercive practice" means harming or threatening to harm, directly or indirectly persons or their property to influence their participation in the procurement process or affect the execution of a contract;

- (b) will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for the Contract in question;

- (c) will have the right to require that a provision be included in Bidding Documents and in contracts requiring Bidders, Suppliers, Contractors to permit the Employer to inspect their accounts and records and other documents relating to the bid submission and contract performance and to have them audited by auditors appointed by the Employer

33.2 Furthermore, Bidders shall be aware of the provision stated in sub-clause 53.1 of the Conditions of Contract.

SECTION 2:

FORMS AND FORMATS

FORMS OF BID, QUALIFICATION INFORMATION

1. FORM – I (to be enclosed with Pre-Qualification)

1.1. LETTER COMPRISING THE BID

[On Letterhead of the Bidder]

The Director,
Indian Institute of Tropical METEOROLOGY,
Dr. Homi Bhabha Road,
NCL post, Pashan,
Pune – 411008,
INDIA.

Dear Sir,

Sub: Tender Reference No. _____ dated _____ for providing FULL HD VIDEO AND AUDIO SYSTEMS ALONG WITH SYSTEM INTEGRATION”

With reference to your tender document dated*****, I/we, have examined the Bidding Documents and understood their contents, hereby submit my/our Bid for the aforesaid Project.

- ❖ The Bid is unconditional.
- ❖ All information provided in the Bid and in the Appendices is true and correct.
- ❖ This statement is made for the express purpose of qualifying as a Bidder for the Supply, .Installation, Commissioning, Testing and maintenance of the aforesaid Project as explained in this tender document.
- ❖ I/We shall make available to the Authority any additional information it may find necessary or require to supplement or authenticate the Bid.
- ❖ I/ We acknowledge the right of the Authority to reject our Bid without assigning any reason or otherwise and hereby waive our right to challenge the same on any account whatsoever.
- ❖ We certify that in the last three years, we have not been expelled from any project or contract nor have had any contract terminated for breach on our part.
- ❖ I/We declare that:
 - I/ We have examined and have no reservations to the Bidding Documents, Including any Addendum issued by the Authority.
 - I/ We do not have any conflict of interest in accordance with provisions of the tender document.
 - I/ We have not directly or indirectly or through an agent engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as defined in the tender document, in respect of any tender or request for proposal issued by or any agreement entered into with the Authority or any other public sector enterprise or any government, Centre or State; and
 - I/ We here by certify that we have taken steps to ensure that in conformity with the provisions of the tender, no person acting for us or on our behalf has engaged or will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice.

- ❖ I/ We understand that you may cancel the Bidding Process at any time and that you are neither bound to accept any Bid that you may receive nor to invite the Bidders to Bid for the Project, without incurring any liability to Bidders, in accordance with provisions of the tender document.
- ❖ I/ We believe that we meet the requirements as specified in the tender document and are/ is qualified to submit a Bid.
- ❖ I/ We declare that we are not a Member of any other bidder submitting a Bid for the Project.
- ❖ I/ We are an existing Company incorporated under the Indian Companies Act, 1956.
- ❖ I/We hereby irrevocably waive any right which we may have at any stage at law or how-so-ever otherwise arising to challenge or question any decision taken by the Authority in connection with the selection of the Bidder, or in connection with the Bidding Process itself, in respect of the above mentioned Project and the terms and implementation thereof.
- ❖ In the event of my/ our being declared as the Selected Bidder, I/We agree to enter into an Agreement in accordance with the draft that has been provided to me/us prior to the Due Date. We agree not to seek any changes in the aforesaid draft and agree to abide by the same.
- ❖ I/We have studied all the Bidding Documents carefully and also surveyed the project area. We understand that except to the extent as expressly set forth in the Agreement, we shall have no claim, right or title arising out of any documents or information provided to us by the Authority or in respect of any matter arising out of or concerning or relating to the Bidding Process including the award of Contract.
- ❖ The Financial Bid has been quoted by me/us after taking into consideration all the terms and conditions stated in the tender documents, our own estimates of costs and its characteristics and after a careful assessment of the site and all the conditions that may affect the Bid.
- ❖ I/We offer a Bid Security of Rs 4,00,000.00 (Rupees Four Lakhs only) to the Authority in accordance with the provisions of the tender document.
- ❖ The Bid Security in the form of a Demand Draft (dd number; date: Bank Name:) /or Bank Guarantee (strike out whichever is not applicable) is attached.
- ❖ I/We agree and understand that the Bid is subject to the provisions of the Bidding Documents. In no case, I/We shall have any claim or right of whatsoever nature if the Project / Contract is not awarded to me/us or our Bid is not opened.
- ❖ I/We agree to keep this offer valid for 120 (One Hundred and Twenty) days from the Bid Due Date specified in the tender document.
- ❖ I/We agree and undertake to abide by all the terms and conditions of the tender document. In witness thereof, I/we submit this Bid under and in accordance with the terms of the tender document.
- ❖ I/we will abide by the terms and condition set forth in the draft Contract agreement and a copy of the same bearing initial of the undersign on every page is attached herewith.
- ❖ Notwithstanding any qualification or conditions, whether implied or otherwise, contained in our offer we hereby represent and confirm that our offer is unconditional in all respects.

Yours Truly,

(Signature of the Authorized signatory)

Date:

Place:

(Name and Designation of the of the Authorized signatory)

Name and seal of Bidder

2.0. FORM II (to be enclosed with Pre-Qualification)

2.1. POWER OF ATTORNEY/BOARD RESOLUTION FOR SIGNING OF BID

Know all men by these presents, We, _____ (name of the firm and address of the registered office) do hereby irrevocably constitute, nominate, appoint and authorize Mr. / Ms (Name), son/daughter/wife of _____ and presently residing at _____, who is [presently employed with us and holding the position of _____], as our true and lawful attorney (Hereinafter referred to as the "Attorney") to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to Submission of our bid **for providing FULL HD VIDEO AND AUDIO SYSTEMS ALONG WITH SYSTEM INTEGRATION** including but not limited to signing and Submission of all applications, bids and other documents and writings, participate in Bidders' and other conferences and providing information / responses to the Authority, Representing us in all matters before the Authority, signing and execution of all contracts Including the Contract Agreement and undertakings consequent to acceptance of Our bid, and generally dealing with the Authority in all matters in connection with or Relating to or arising out of our bid for the said Project and/or upon award thereof to us And/or till the entering into of the Contract Agreement with the Authority. AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things lawfully done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE, _____, THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS _____ DAY OF _____, 2012.
For _____
(Signature)
(Name, Title and Address)

Witnesses:

- 1.
 - 2.
- Accepted[Notarised]
(Signature)
(Name, Title and Address
of the Attorney)

Notes:

- The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executants(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.
- Also, wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a resolution/power of attorney in favor of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.

3.0. FORM III (to be enclosed with Pre-Qualification)

3.1. UNDERTAKING REGARDING INELIGIBILITY / BLACKLIST / FRAUDULENT ACTIVITIES

(To be submitted separately on the Letter Head of the Bidder)

Date: _____

The Director,
Indian Institute of Tropical METEOROLOGY,
Dr. Homi Bhabha Road,
NCL post, Pashan,
Pune – 411008,
INDIA.

Dear Sir,

Sub: Tender Reference No. _____ dated _____ for providing FULL HD VIDEO AND AUDIO SYSTEMS ALONG WITH SYSTEM INTEGRATION”

Having examined the tender document, we, the undersigned, herewith submit our response to Your tender Notification for the aforesaid Project.

- ❖ We have read the provisions of the tender document and familiarized ourselves with it, and confirm that these are acceptable to us.
- ❖ We would like to declare that we are not involved in any litigation with the Authority or any other Authority in India such as A. Govt. of India / Govt. of India undertaking B. Any other state Government / State Government undertaking C. PSU / Defence Establishments at the date of submission of the offer and we are not under a declaration of ineligibility for corrupt or fraudulent practices.
- ❖ We hereby declare that we have not been blacklisted by the Authority or any other Authority in India such as A. Govt. of India / Govt. of India undertaking B. Any other state Government / State Government undertaking C. PSU / Defence Establishments at the date of submission of the offer
- ❖ We hereby declare that we have not been charged with any fraudulent activities by the Authority or any other Authority in India such as A. Govt. of India / Govt. of India undertaking B. Any other state Government / State Government C. PSU / Defence Establishments at the date of submission of the offer

We hereby declare that our proposal submitted in response to this tender is made in good faith and the information contained is true and correct to the best of our knowledge and belief.

Yours Truly,

For and on behalf of (name of bidder)
Duly signed by the Authorised signatory of the Bidder

(Name, Designation and Address of the Authorized Signatory)

4.0. FORM IV (to be enclosed with Pre-Qualification)

4.1. UNDERTAKING REGARDING SUB-CONTRACTING

(To be submitted separately on the Letter Head of the Bidder)

Date: _____

The Director,
Indian Institute of Tropical METEOROLOGY,
Dr. Homi Bhabha Road,
NCL post, Pashan,
Pune – 411008,
INDIA.

Dear Sir,

Sub: Tender Reference No. _____ dated _____ for providing FULL HD VIDEO AND AUDIO SYSTEMS ALONG WITH SYSTEM INTEGRATION”

Having examined the tender document, we, the undersigned, herewith submit our response to Your tender Notification for the aforesaid Project.

- ❖ We have read the provisions of the tender document and familiarized ourselves with it, and confirm that these are acceptable to us.
- ❖ We would like to declare that in the event of award of contract the project shall not be sub-contracted in part or in its entirety.
- ❖ We hereby declare that in the event of award of contract the project we shall be solely responsible for the execution of the project

We hereby declare that our proposal submitted in response to this tender is made in good faith and the information contained is true and correct to the best of our knowledge and belief.

Yours Truly,

For and on behalf of (name of bidder)
Duly signed by the Authorised signatory of the Bidder

(Name, Designation and Address of the Authorized Signatory)

5.0. FORM V (to be enclosed with Pre-Qualification)

5.1. EARNEST MONEY DEPOSIT - BG FORMAT

- ❖ In consideration of (hereinafter called the “Authority”) represented by __, on the first part and M/s _____ of (hereinafter referred to as “Bidder”) on the Second part, having agreed to accept the Earnest Money Deposit of Rs. (Rupees) in the form of Bank Guarantee for the Request for Proposal for procurement of we (Name of the Bank), hereinafter referred to as the “Bank”), do hereby undertake to pay to the Authority forthwith on demand without any demur and without seeking any reasons whatsoever, an amount not exceeding (Rupees) and the guarantee will remain valid up to a period of 60 days from the due date of the tender. It will, However, be open to the Authority to return the Guarantee earlier than this period to The System Integrator, in case the System Integrator does not qualify on the bid(s) after an evaluation.
- ❖ In the event of the System Integrator withdrawing the tender before the completion of the stages prior to the tender evaluation or during the signing of agreement after issue of LOA, as the case may be, the Guarantee deposited by the System Integrator stands forfeited to the Authority. We also undertake not to revoke this guarantee during this period except with the previous consent of the Authority in writing and we further agree that our liability under the Guarantee shall not be discharged by any variation in the term of the said tender and we shall be deemed to have agreed to any such variation.
- ❖ No interest shall be payable by the Government to the System Integrator on the guarantee for the period of its currency.

Dated this _____ day of _____ 2012

For the Bank of _____
(Agent/Manager)

6.0. FORM VI (to be enclosed with Pre-Qualification)

6.1 SAMPLE FORMAT FOR EVIDENCE OF ACCESS TO OR AVAILABILITY OF CREDIT FACILITIES –CLAUSE 5.3 / SI.No. 11 OF ITB

BANK CERTIFICATE

This is to certify that M/s. is a reputed company with a good financial standing.

If the contract for the work, namely is awarded to the above firm, we shall be able to provide overdraft/credit facilities to the extent of Rs. to meet their working capital requirements for executing the above contract.

__ Sd. __

Name of Bank

Senior Bank Manager

Address of the Bank

7.0. FORM VII (to be enclosed with Pre-Qualification)

7.1 Financial Information

Sl.No	Description	Details to be filled in by Bidder
A	Annual Turnover in the last five financial years (In INR crores)	
1	Year : April 2006 - to March 2007	
2	Year : April 2007 - to March 2008	
3	Year : April 2008 - to March 2009	
4	Year : April 2009 - to March 2010	
5	Year : April 2010 - to March 2011	
B	Financial Information (In INR Crores)	
I	Year : April 2006 - to March 2007	
	a. Total assets	
	b. Current assets	
	c. Total Liabilities	
	d. Current Liabilities	
	e. Profits before taxes	
	f. Profits after taxes	
	g. Net worth	
	h. Working Capital	
II	Year : April 2007 - to March 2008	
	a. Total assets	
	b. Current assets	
	c. Total Liabilities	
	d. Current Liabilities	
	e. Profits before taxes	
	f. Profits after taxes	
	g. Net worth	
	h. Working Capital	
III	Year : April 2008 - to March 2009	
	a. Total assets	
	b. Current assets	
	c. Total Liabilities	
	d. Current Liabilities	
	e. Profits before taxes	
	f. Profits after taxes	
	g. Net worth	
	h. Working Capital	

IV	Year : April 2009 - to March 2010	
	a. Total assets	
	b. Current assets	
	c. Total Liabilities	
	d. Current Liabilities	
	e. Profits before taxes	
	f. Profits after taxes	
	g. Net worth	
	h. Working Capital	
V	Year : April 2010 - to March 2011	
	a. Total assets	
	b. Current assets	
	c. Total Liabilities	
	d. Current Liabilities	
	e. Profits before taxes	
	f. Profits after taxes	
	g. Net worth	
	h. Working Capital	
C	Solvency Certificate (in INR Crores)	
	a. Name of Banker with address	
	b. Date of Certificate	
	c. Amount	
D	Credit facilities available to Bidder – Fund and non-fund based such as Cash Credit, Working capital term loans, LCs and Bank Guarantees - Banker's or Bankers' Letter must be produced - (In INR Crores)	
	a. Name of Banker with address	
	b. Date of Letter of Support	
	c. Amount	
E.	Bidder's Financial resources for this project	
	a. Own resources	
	b. Banker's or Bankers' credits	

Place :

Signature of Bidder

Official Seal

Date :

Note: Balance sheet, Profit and loss statement, auditor's report etc. duly signed by Chartered Accountant is required to be attached separately

8.0. FORM VIII (to be enclosed with Pre-Qualification)

8.1 Details of completed works in last five years

S. No.	Client's Name and Complete Address Postal Address with Pin Code	Name of the Work & Location	Scope of work carried out by the Bidder	Agreement / Letter of Award No. and date	Contract Value (Rs. in Lakhs)		Date of Start	Date of Completion		Reasons for delay in completion if any
					Awarded	Actual on completion		As per LOA / Agreement	Actual	

SEAL AND SIGNATURE OF THE BIDDER

Date:

Signature of Bidder

Place:

Official Seal

9.0. FORM IX (to be enclosed with Technical Offer)

9.1. TECHNICAL COMPLIANCE FORMAT

The bidder shall submit the technical offer as per the following format and confirm Compliance for the technical specifications of the tender, which is listed from page 66 to 117

SPECIFICATIONS	COMPLIANCE	DEVIATION

For and on behalf of (name of bidder)

Duly signed by the Authorised signatory of the Bidder

(Name, Designation and Address of the Authorized Signatory)

*Important - Please note every page of the Technical Offer shall be signed by the bidder.

10.0. FORM X (to be enclosed with Technical Offer)

10.1. MANUFACTURERS AUTHORIZATION LETTER

[On Letterhead of the OEM]

The Director,
Indian Institute of Tropical METEOROLOGY,
Dr. Homi Bhabha Road,
NCL post, Pashan,
Pune – 411008,
INDIA.

Dear Sir,

Sub: Tender Reference No. _____ dated _____ for providing FULL HD VIDEO AND AUDIO SYSTEMS ALONG WITH SYSTEM INTEGRATION”

We, _____ who are established and reputable manufacturers of _____ having our factory at _____, do hereby authorize M/s _____ to submit the above tender, and sign the contract with you for the goods manufactured by us.

We hereby extend our full guarantee and warranty for the goods offered for supply by the above firm against this tender.

We also undertake that the quoted products are not End of Life products and to provide timely supplies as per terms and as agreed mutually and also to provide a trouble free and continuous support through M/s _____, under our supervision during the contract period.

We will provide the necessary spares support in the event of replacement of any spare parts is necessitated while providing the warranty and extended warranty services.

Thanking you

Yours Truly,

11.0. FORM X1 (to be enclosed with Financial Offer)

11.1. FORMAT FOR FINANCIAL OFFER

(To be submitted separately on the Letter Head of the Bidder)

Date: _____

To:
The Director,
Indian Institute of Tropical METEOROLOGY,
Dr. Homi Bhabha Road,
NCL post, Pashan,
Pune – 411008,
INDIA.

Dear Sir,

Sub: Tender Reference No. _____ dated _____ for providing FULL HD VIDEO AND AUDIO SYSTEMS ALONG WITH SYSTEM INTEGRATION”

Having gone through the tender documents and having fully understood the Scope of Work for the Project as set out by the Authority in the tender document.

- ❖ I/We are pleased to inform that I/We would charge the following the Total Contract Value (TCV*) for carrying out the Project envisaged under the Scope of Work indicated in this tender document,

❖

Quoted Total Contract Value inclusive of all taxes and levies

Rs. _____

- ❖ We confirm that in case of discrepancy in figures and words for the amount quoted the “amount in words” will be considered.
- ❖ We confirm that the Financial Offer conforms to all the terms & conditions stipulated in the Tender Document.
- ❖ We confirm that our Financial Offer is FINAL in all respects and contain no conditions.

Yours Truly,

For and on behalf of (name of bidder)

Duly signed by the Authorised signatory of the Bidder

(Name, Designation and Address of the Authorized Signatory)

SECTION 3

FORMS OF SECURITIES

Forms of Securities

Acceptable forms of securities are annexed. Bidders should not complete the Performance and Advance Payment Security forms at this time. Only the successful Bidder will be required to provide Performance and Advance Payment Securities in accordance with one of the forms, or in a similar form acceptable to the Employer.

Annex A: Performance Bank Guarantee

Annex B: Performance Bank Guarantee for Unbalanced Items

Annexure A

PERFORMANCE BANK GUARANTEE

To:

The Director Indian Institute of Tropical Meteorology, Dr.Homi Bhabha Road, NCL post,Pashan, Pune, India.

WHEREAS _____ [*name and address of Contractor*] (hereinafter called "the Contractor") has undertaken, in pursuance of Contract No. _____ dated _____ to execute Interior Work for Multi Training Facility Building for Indian Institute of Tropical Meteorology, Dr. Homi Bhabha Road, NCL post, Pashan ,Pune (hereinafter called "the Contract");

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of _____ [*amount of guarantee*] _____ [*in words*], such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ [*amount of guarantee*]¹ as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until (i.e.) 28 days from the date of expiry of the Defects Liability Period.

Signature and seal of the guarantor _____
Name of Bank _____
Address _____
Date _____

- An amount shall be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract and denominated in Indian Rupees.

Annexure B

PERFORMANCE BANK GUARANTEE (for unbalanced items)

To:

THE DIRECTOR, Indian Institute of Tropical Meteorology, Dr. Homi Bhabha Road, NCL post, Pashan ,Pune, India.

WHEREAS _____ [*name and address of Contractor*] (hereinafter called "the Contractor") has undertaken, in pursuance of Contract No. _____ dated _____ to execute Interior Work For Multi Training Facility Building For Indian Institute of Tropical Meteorology, Dr. Homi Bhabha Road, NCL post, Pashan ,Pune, (hereinafter called "the Contract");

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of _____ [*amount of guarantee*]¹ _____ [*in words*], such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ [*amount of guarantee*]¹ as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until (i.e.) 28 days from the date of issue of the certificate of completion of works.

Signature and seal of the guarantor _____
Name of Bank _____
Address _____
Date _____

1 An amount shall be inserted by the Guarantor, representing additional security for unbalanced Bids, if any and denominated in Indian Rupees.

Letter of Acceptance

(Letterhead paper of the Employer)

_____ [date]

To: _____
[Name and address of the Contractor]

Dear Sirs,

This is to notify you that your Bid dated _____ for execution of the _____ [name of the contract and identification number, as given in the Instructions to Bidders] for the Contract Price of Rupees _____ (_____) [amount in words and figures], as corrected and modified in accordance with the Instructions to Bidders¹ is hereby accepted by our Agency.

We accept/do not accept that _____ be appointed as the Adjudicator².

We note that as per bid, you do not intend to subcontract any component of work.

[OR]

We note that as per bid, you propose to employ M/s. _____ as sub-contractor for executing _____

[Delete whichever is not applicable]

You are hereby requested to furnish Performance Security, plus additional security for unbalanced bids in terms of ITB clause 27.5, in the form detailed in Para 31.1 of ITB for an amount of Rs.— _____ within 21 days of the receipt of this letter of acceptance valid up to 28 days from the date of expiry of Defects Liability Period i.e. up to and sign the contract, failing which action as stated in Para 31.2 of ITB will be taken.

We have reviewed the construction methodology submitted by you along with the bid in response to ITB Clause 4.2[k] and our comments are given in the attachment. You are requested to submit a revised Program including environmental management plan as per Clause 27 of General Conditions of Contract within 14 days of receipt of this letter.

Yours faithfully,

Authorized Signature

Name and Title of Signatory

Name of Agency

1 Delete "corrected and" or "and modified" if only one of these actions applies. Delete "as corrected and modified in accordance with the Instructions to Bidders" if corrections or modifications have not been effected.

2 To be used only if the Contractor disagrees in his Bid with the Adjudicator proposed by the Employer in the "Instructions to Bidders."

Issue of Notice to proceed with the work
(Letterhead of the Employer)

To

_____ (date)

_____ (name and address of the Contractor)

Dear Sirs:

Pursuant to your furnishing the requisite security as stipulated in ITB clause 31.1 and signing of the contract agreement for the construction of _____ @ a Bid Price of Rs. _____, you are hereby instructed to proceed with the execution of the said works in accordance with the contract documents.

Yours faithfully,

(Signature, name and title of
signatory authorized to sign
on behalf of Employer).

Agreement Form

Agreement

This agreement, made the _____ day of _____ 19_____, between _____ [name and address of Employer] (hereinafter called "the Employer") of the one part and _____ [name and address of contractor] (hereinafter called "the Contractor") of the other part.

Whereas the Employer is desirous that the Contractor execute PA system, Audio – Visual system and CCTV system in Multi Training Facility Building For INDIAN INSTITUTE OF TROPICAL METEOROLOGY, DR. HOMI BHABHA ROAD, PASHAN, PUNE-411 008. [Name and identification number of Contract] (Hereinafter called "the Works") and the Employer has accepted the Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein, at a contract price of Rs.....

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to, and they shall be deemed to form and be read and construed as part of this Agreement.
2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the Contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying the defects wherein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.
4. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:
 - i) Letter of Acceptance;
 - ii) Notice to proceed with the works;
 - iii) Contractor's Bid;
 - iv) Contract Data;
 - v) Conditions of contract (including Special Conditions of Contract);
 - vi) Specifications;
 - vii) Drawings;
 - viii) Bill of Quantities; and
 - ix) Any other document listed in the Contract Data as forming part of the contract.

In witness whereof the parties thereto have caused this Agreement to be executed _____ the day and year first before written.

The Common Seal of _____

was hereunto affixed in the presence of:

Signed, Sealed and Delivered by the said _____

in the presence of:

Binding Signature of Employer _____

Binding Signature of Contractor _____

SECTION 4

Conditions of Contract

Conditions of Contract

Table of Contents

A. General No.	Page No.	C. Quality Control	Page
1. Definitions	47	25. Identifying Defects	52
2. Interpretation	48	26.	
3. Language and Law	48	27. Correction of Defects	52
4. Engineer's Decisions	48	28. Uncorrected Defects	52
5. Delegation	48		
6. Communications	48		
.		D. Cost Control	
.		29. Bill of Quantities	52
7. Employer's & Contractor's Risks	49	30. Changes in the Quantities	52
8. Employer's Risks	49	31. Variations	52
9. Contractor's Risks	49	32. Payments for Variations	53
.		33. Cash Flow Forecasts	53
.		34. Payment Certificates	53
.		35. Payments	53
.		36. Compensation Events	53
.		37. Tax	54
.		38. Currencies	54
10. The Works to Be Completed by the Intended Completion Date	49	39. Price Adjustments	54
11. Approval by the Architect	49	40. Retention	54
12. Safety	50		
13. Discoveries	50	Securities	54
14. Possession of the Site	50	Work during night	54
15. Access to the Site	50	Cost of Repairs	55
16. Instructions	50		
17. Disputes	50	E. Finishing the Contract	
18. Procedure for Disputes	50	41. Completion	55
19. Replacement of Adjudicator	50	42. Taking Over	55
B. Time Control		43. Final Account	55
20. Program	51	44. Operating and Maintenance Manuals	55
21. Extension of the Intended Completion Date	51	45. Termination	55
.		46. Payment upon Termination	56
22. Delays Ordered by the Engineer	51	47. Property	56
23. Management Meetings	51	48. Release from Performance	56
24. Early Warning	51	49. Fraud and corruption	56
		F. Special Conditions of Contract	57

Conditions of Contract

A. General

1.0 Definitions

- 1.1 Terms which are defined in the Contract Data are not defined in the Conditions of Contract but keep their defined meanings. Capital initials are used to identify defined terms.

The **Adjudicator** is the person appointed jointly by the Employer and the Contractor to resolve disputes in the first instance, as provided for in Clauses 24 and 25. The name of the Adjudicator is defined in the Contract Data.

Bill of Quantities means the priced and completed **Bill of Quantities** forming part of the Bid.

Compensation Events are those defined in Clause 37 hereunder.

The **Completion Date** is the date of completion of the Works as certified by the Engineer in accordance with Sub Clause 45.1.

The **Contract** is the contract between the Employer and the Contractor to execute, complete and maintain the Works. It consists of the documents listed in Clause 2.3 below.

The **Contractor** is a person or corporate body who's Bid to carry out the Works has been accepted by the Employer.

The **Contractor's Bid** is the completed Bidding document submitted by the Contractor to the Employer.

The **Contract Price** is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Days are calendar days; **months** are calendar months.

A Defect is any part of the Works not completed in accordance with the Contract.

Defects Liability Period is the period named in the Contract Data and calculated from the Completion Date.

The **Employer** is the party who will employ the Contractor to carry out the Works. In this contract The Managing Director, Indian Institute of Tropical METEOROLOGY, Dr. Homi Bhabha Road, NCL post, Pashan ,Pune. is the Employer

The **Architect shall** mean the Consultants engaged by the Employer. In this case Archivista Engineering Projects Pvt. Ltd. 201/202 Sai Empire Baner Pune. 45.

The Initial Contract Price is the Contract Price listed in the Employer's Letter of Acceptance.

Drawings mean the employer's drawings of the works included in the contract and any variations to such drawings given by an Architect.

Party means either employer or contractor.

Country means the country in which the site is located.

Employer's Liabilities means those mentioned in sub clause 10.1.

Force Majeure means an exceptional events or circumstance which is beyond a Party's control, which such Party could not reasonably have provided against before entering in to the contract; which, having arisen, such party could not reasonably have avoided or overcome; and, which is not substantially attributable to the other party.

The **Intended Completion Date** is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the Contract Data. The

Intended Completion Date may be revised only by the Engineer by issuing an extension of time.

The **Site** is the area defined as such in the Contract Data.

Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Architect.

The **Start Date** it is the date when Issue of notice to proceed with the work is given to the Contractor shall commence execution of the works.

A **Variation** is an instruction given by the Architect which varies the Works.

2.0 Interpretation

2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Architect will provide instructions clarifying queries about the Conditions of Contract.

2.2 If sectional completion is specified in the Contract Data, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion date for the whole of the Works).

2.3 The documents forming the Contract shall be interpreted in the following order of priority:

- (1) Agreement
- (2) Letter of Acceptance, notice to proceed with the works
- (3) Contractor's Bid
- (4) Conditions of Contract including Special Conditions of Contract
- (5) Specifications
- (6) Drawings
- (7) Bill of Quantities and

3.0 Language and Law

3.1 The language of the Contract and the law governing the Contract are stated in the Contract Data.

4.0 Engineer's Decisions

4.1 Except where otherwise specifically stated, the Engineer will decide contractual matters between the Employer and the Contractor in the role representing the Employer.

5.0 Delegation

5.1 The Architect/Employer may delegate any of his duties and responsibilities to other people except to the Adjudicator after notifying the Contractor and may cancel any delegation after notifying the Contractor.

6.0 Communications

6.1 Communications between parties which are referred to in the conditions are effective only when in writing. A notice shall be effective only when it is delivered (in terms of Indian Contract Act).

7.0 PARTICULAR ATTENTION

7.1 Employer reserves its rights to disqualify any BIDDER if:

- The BIDDERS have made untrue or false representation in the forms, statements and attachments submitted in proof of the qualification and requirements ;
- The BIDDER's track record of poor performance such as abandoning the work, not properly completing the contract, inordinate delays in completion or financial failures etc.

- The BIDDERS have suits lodged / admitted / pending against it in a Court of Law for proceedings for declaration of Bankruptcy, etc or any suit which challenges the basic existence of the BIDDER and substantially influences its capacity to implement the **Works** satisfactorily.
- The BIDDER shall unconditionally waive all rights in respect of challenging in any court any matter concerning this BID evaluation and award/termination of Contract. The aggrieved bidder can approach **The DIRECTOR**, INDIAN INSTITUTE OF TROPICAL METEOROLOGY, DR.HOMI BHABHA ROAD, PASHAN, PUNE-411 008 for their appeal against any order.

8.0 FINAL DECISION MAKING AUTHORITY

- 8.1** The main criteria for the selection of Contractors for the work will be on the consideration of their ability to fulfill their obligations under the contract. and competence to do good quality works within specified time schedule resources committed, evaluation of technical submission etc. in addition to consideration given for competitiveness of bid price.
- 8.2** Selection for qualification will be made by a Tender evaluation committee on the basis of competence of individual bidders.
- 8.3** **The DIRECTOR**, INDIAN INSTITUTE OF TROPICAL METEOROLOGY, DR.HOMI BHABHA ROAD, PASHAN, PUNE-411 008 reserves the right to accept or reject any Bid or to reduce the scope/ cancel the exercise without having to incur any cost or to assign any reason for its decision to any party whatsoever and **The DIRECTOR**, INDIAN INSTITUTE OF TROPICAL METEOROLOGY, DR.HOMI BHABHA ROAD,PASHAN,PUNE-411 008 decision on qualifying contractors will be final and binding on all the contractors.

9.0. Employer's and Contractor's Risks

- 9.1** The Employer carries the risks which this Contract states are Employer's risks, and the Contractor carries the risks which this Contract states are Contractor's risks.

10.0 Employer's Risks

- 10.1** The Employer is responsible for the excepted risks which are (a) in so far as they directly affect the execution of the Works in the Employer's country, the risks of war, hostilities, invasion, act of foreign enemies, rebellion, revolution, insurrection or military or usurped power, interior war, riot commotion or disorder (unless restricted to the Contractor's employees), and contamination from any nuclear fuel or nuclear waste or radioactive toxic explosive, or (b) a cause due solely to the design of the Works, other than the Contractor's design.

11.0 Contractor's Risks

- 11.1** All risks of loss of or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract other than the excepted risks are the responsibility of the Contractor.

12.0 The Works to Be Completed by the Intended Completion Date

- 12.1** The Contractor may commence execution of the Works after fulfilling the contract conditions and shall carry out the Works in accordance with the program submitted by the Contractor, as updated with the approval of the Engineer, and complete them by the Intended Completion Date.

13.0 Approval by the Architect

- 13.1** The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Architect and Institute authorities and take approval from the Architect /Institute authorities who are to approve them if they comply with the Specifications and Drawings.
- 13.2** The Contractor shall be responsible for design of Temporary Works.
- 13.3** The Architects approval shall not alter the Contractor's responsibility for design of the Temporary Works.

13.4 The Contractor shall obtain approval of third parties to the design of the Temporary Works where required.

13.5 All Drawings prepared by the Contractor for the execution of the temporary Works, are subject to prior approval by the Architect before their use.

14.0 Safety

14.1 The Contractor shall be responsible for the safety of all activities on the Site, as per safety norms and Building Code No:.....

15.0 Discoveries

15.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site is the property of the Employer. The Contractor is to notify the Engineer of such discoveries and carry out the Engineer's instructions for dealing with them.

16.0 Possession of the Site

16.1 The Employer shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date stated in the Contract Data the Employer is deemed to have delayed the start of the relevant activities and this will be Compensation Event.

17.0 Access to the Site

The Contractor shall allow the Employer / Engineer / Architect and his / their authorized representative access to the Site, to any place where work in connection with the Contract is being carried out or is intended to be carried out and to any place where materials or plant are being manufactured / fabricated / assembled for the works.

18.0 Instructions

18.1 The Contractor shall forthwith comply with and duly execute any work as instructed by the Employer / Engineer / Architect. All instructions will be in writing. Instructions if orally given then contractor shall confirm them within seven days from the date of such instructions.

19.0 Disputes

19.1 If the Contractor believes that a decision taken by the Engineer /Architect was either outside the authority given to the them by the Contract or that the decision was wrongly taken, the decision shall be referred to the Adjudicator within 14 days of the notification of the Engineer's / Architect's decision.

20.0 Procedure for Disputes

20.1 In case of any dispute regarding part-shipment, non-compliance of any feature etc., the Director, Indian Institute of Tropical Meteorology, Pune will be the final authority to decide the appropriate action and it will be binding on the vendor.

21.0 All disputes are subject to exclusive jurisdiction of Competent Court and Forum in Pune, India only.

B. Time Control

22.0 Program

22.1 Within the time stated in the Contract Data the Contractor shall submit to the Architect for approval a Program including Environmental Management Plan showing the general methods, arrangements, order, and timing for all the activities in the Works along with monthly cash flow forecast.

22.2 An update of the Program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work including any changes to the sequence of the activities.

22.3 The Contractor shall submit to the Architect /Engineer, for approval, an updated Program at intervals no longer than the period stated in the Contract Data. If the Contractor does not submit an updated Program within this period, the Employer may withhold the amount stated in the Contract Data from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program has been submitted.

22.4 The Architect's approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the Architect again at any time. A revised Program is to show the effect of Variations and Compensation Events.

23.0 Extension of the Intended Completion Date

23.1 The Employer / Architect shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work and which would cause the Contractor to incur additional cost.

23.2 The Employer / Architect shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Employer for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.

24.0 Delays Ordered by the Engineer

24.1 The Employer may instruct the Contractor to delay the start or progress of any activity within the Works.

25.0 Management Meetings

25.1 Either the Employer / Architect or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.

25.2 The Employer / Architect shall record the business of management meetings and is to provide copies of his record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken is to be decided by the Employer either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

26.0 Early Warning

26.1 The Contractor is to warn the Employer / Architect at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price or delay the execution of works. The Employer /Architect may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate is to be provided by the Contractor as soon as reasonably possible.

26.2 The Contractor shall cooperate with the Employer / Architect in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Engineer.

C. Quality Control

27.0 Identifying Defects

27.1 The Architect/Employer shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Architect may instruct the Contractor to search for a Defect and to uncover and test any work that the Architect considers may have a Defect.

27.2 The contractor shall permit the Employer's Technical auditor to check the contractor's work and notify the Employer/ Architect and Contractor of any defects that are found. Such a check shall not affect the Contractor's or the Architect's responsibility as defined in the Contract Agreement.

28.0 Correction of Defects

- 28.1** The Employer/ Architect shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion and is defined in the Contract Data. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.
- 28.2** Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified in the Employer/ Architect's notice.

29.0 Uncorrected Defects

- 29.1** If the Contractor has not corrected a Defect within the time specified in the Engineer's notice, the Engineer will assess the cost of having the Defect corrected, and the Contractor will pay this amount.

Note: Where in certain cases, the technical specifications provide for acceptance of works within specified tolerance limits at reduced rates Architect will certify payments to Contractor accordingly.

D. Cost Control

30.0 Bill of Quantities

- 30.1** The Bill of Quantities shall contain items for the construction, installation, testing, and commissioning work to be done by the contractor.
- 30.2** The Bill of Quantities is used to calculate the Contract Price. The Contractor is paid for the quantity of the work done at the rate in the Bill of Quantities for each item.

31.0 Changes in the Quantities

- 31.1** If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 10 percent, Architect shall give proper justification to get approval of institute authorities
- 31.3** If requested by the Architect / Employer, the Contractor shall provide the Architect / Employer with a detailed cost breakdown of any rate in the Bill of Quantities.

32.0 Variations

- 32.1** All Variations shall be included in updated Programs produced by the Contractor.

33.0 Payments for Variations

- 33.1** The Contractor shall provide the Architect / Employer with a quotation (with breakdown of unit rates) for carrying out the Variation when requested to do so by the Architect / Employer. The Architect shall assess the quotation, which shall be given within seven days of the request or within any longer period stated by the Employer and before the Variation is ordered.
- 33.2** If the work in the Variation corresponds with an item description in the Bill of Quantities and if, in the opinion of the Architect / Employer, the quantity of work above the limit stated in Sub Clause 31.1 or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in form of new rates for the relevant items of work.
- 33.3** If the Contractor's quotation is unreasonable (or if the contractor fails to provide the Architect /Employer with a quotation within a reasonable time specified by the Architect in accordance with Clause 33.1), the Employer may order the Variation and make a change to the Contract Price which shall be based on Architect's own forecast of the effects of the Variation on the Contractor's costs.
- 33.4** If the Architect / Employer decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and will be decided on mutually agreed rates.
- 33.5** The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning.

34.0 Cash flow forecasts

34.1 When the Program is updated, the contractor is to provide the Architect / Employer with an updated cash flow forecast.

35.0 Payment Certificates

35.1 The detailed measurements will be taken for all the works executed by the authorized representatives of the architect and recorded in the measurement books and acceptance for these measurements will be obtained from the contractor. Due check measurement of these measurements will be done as per the procedure in practice.

35.2 Contract bills will be prepared by the contractors engineers at frequent intervals and submitted to the Employer for making payment.

35.3 The value of work executed shall be determined by the Architect after due check measurement of the quantities claimed as executed by the contractor.

35.4 The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed..

35.5 The value of work executed shall include the valuation of Variations and Compensation Events as Specified in clause 37.

35.6 The Architect/Employer may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

36.0 Payments

36.1 **Penalty Clause: If you fail to carry out the work as per the specification mentioned in ordered BOQ within the due date you will be liable to pay liquated damages at 1% per week and maximum up to 10% of total value and such money will be deducted from any money due to or which may become due to you.**

37.0 Compensation Events

37.1 The following are Compensation Events unless they are caused by the Contractor:

- (a) The Employer does not give access to a part of the Site by the Site Possession Date stated in the Contract Data.
- (b) The Architect / Employer orders a delay or does not issue drawings, specifications or instructions required for execution of works on time.
- (c) The effect on the Contractor of any of the Employer's Risks.
- (d) The Architect / Employer unreasonably delays issuing a Certificate of Completion.

37.2 If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date is extended. The Architect / Engineer shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.

37.3 As soon as information demonstrating the effect of each Compensation Event upon the Contractor's forecast cost has been provided by the Contractor, it is to be assessed by the Architect / Employer and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Architect / Employer shall adjust the Contract Price based on Architect's own forecast. The Engineer will assume that the Contractor will react competently and promptly to the event.

37.4 The Contractor shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Contractor not having given early warning or not having cooperated with the Engineer.

38.0 Tax

38.1 The rates quoted by the Contractor shall be inclusive of all taxes and duties that the Contractor will have to pay for the performance of this Contract.

39.0 Currencies

39.1 All payments shall be made in Indian Rupees.

40.0 Price Adjustment

40.1 To the extent that full compensation for any rise or fall in costs to the contractor is not covered by the provisions of this or other clauses in the contract, the unit rates and prices included in the contract shall be deemed to include amounts to cover the contingency of such other rise or fall in costs.

41.0 Retention

41.1 The Employer or his representative shall retain from each payment due to the Contractor the proportion stated in the Contract Data until Completion of the whole of the Works.

41.2 Total amount retained is repaid to the Contractor after the Defects Liability Period has passed and The Architect has certified that all Defects notified by the architect to the Contractor before the end of this period have been corrected. After the defect liability period of twelve months the contractor will submit to the Employer an Indemnity bond in the prescribed format by the Employer to the effect that the contractor is responsible for all structural defects for a further period of four years.

42.0 Securities

42.1 The Performance Security shall be provided to the Employer not later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and by a bank or surety acceptable to the Employer, and denominated in Indian Rupees. The Performance Security shall be valid until the date 7 days from the date of expiry of Defects Liability Period.

43.0 Works during Night

If it is essential to execute the work during night hours prior approval of the Employer has to be obtained.

44.0 Cost of Repairs

44.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.

E. Finishing the Contract

45.0 Completion

45.1 The Contractor shall request the Architect /Employer to issue a Certificate of Completion of the Works and the Employer / Architect will do so upon deciding that the Work is completed.

46.0 Taking Over

46.1 The Employer shall take over the Site and the Works within seven days of the Architect issuing a certificate of Completion.

47.0 Final Account

47.1 The final bill will be settled after Testing and commissioning of all the items of work contemplated in the agreement to the satisfaction of the engineer and taking over of the building by the Architect/Employer.

48.0 Operating and Maintenance Manuals

48.1 If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the Contract Data.

48.2 If the Contractor does not supply the Drawings and/or manuals by the dates stated in the Contract Data, or they do not receive the Architect's approval, the Architect shall withhold the amount stated in the Contract Data from payments due to the Contractor.

49.0 Termination

49.1 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

49.2 Fundamental breaches of Contract include, but shall not be limited to the following:

- (a) The Contractor stops work for 14 days when no stoppage of work is shown on the current program and the stoppage has not been authorized by the Architect;
- (b) The Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation;
- (c) the Architect/Employer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Architect/Employer;
- (d) the Contractor has delayed the completion of works by the number of days for which the maximum amount of liquidated damages can be paid as defined in the Contract data; and
- (e) If the Contractor, in the judgment of the employer has engaged in fraud and corruption, as defined in GCC Clause 63, in competing for or in executing the Contract.

49.3 When either party to the Contract gives notice of a breach of contract to the Architect for a cause other than those listed above, the Employer shall decide whether the breach is fundamental or not.

49.4 Notwithstanding the above, the Employer may terminate the Contract for convenience.

49.5 If the Contract is terminated the Contractor shall stop work immediately, make the Site safe and secure and leave the Site as soon as reasonably possible.

50.0 Payment upon Termination

50.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Architect/Employer shall issue a certificate for the value of the work done less advance payments received up to the date of the issue of the certificate, less other recoveries due in terms of the contract, less taxes due to be deducted at source as per applicable law and less the percentage to apply to the work not completed as indicated in the Contract Data. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor the difference shall be a debt payable to the Employer.

50.2 If the Contract is terminated at the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Architect shall issue a certificate for the value of the work done, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works and less advance payments received up to the date of the certificate, less other recoveries due in terms of the contract and less taxes due to be deducted at source as per applicable law.

51.0 Property

51.1 All materials on the Site, Plant, Equipment, Temporary Works and Works are deemed to be the property of the Employer, if the Contract is terminated because of a Contractor's default.

52.0 Release from Performance

52.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor the Engineer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which commitment was made.

53.0 Fraud and Corruption

53.1 The Employer requires the Contractors and suppliers observe the highest standard of ethics during the procurement and execution of such contracts. In pursuit of this policy, the Employer:

- (a) Defines, for the purposes of this provision, the terms set forth below as follows:
 - (i) "Corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;
 - (ii) "Fraudulent practice" means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;
 - (iii) "Collusive practice" means a scheme or arrangement between two or more Bidders, with employer designed to establish bid prices at artificial, non competitive levels; and
 - (iv) "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract;
- (b) will cancel the contract if it determines at any time that representatives of the contractors engaged in corrupt, fraudulent, collusive or coercive practices during the procurement or the execution of that contract, without the taken timely and appropriate action satisfactory to the satisfaction of the Employer to remedy the situation;
- (d) will sanction a firm or individual, including declaring them ineligible, either indefinitely or for a stated period of time, to be awarded a contract if it at any time they have, directly or through an agent, engaged, in corrupt, fraudulent, collusive or coercive practices in competing for, or in executing, contract; and
- (e) will have the right to require that Contractors to permit the Employer to inspect their accounts and records and other documents relating to the bid submission and contract performance and to have them audited by auditors appointed by the Employer.

F. Special Conditions of Contract

1. **LABOUR:**

The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labour, local or other, and for their payment, housing, feeding and transport.

The Contractor shall, if required by the Architect/Employer, deliver to the Architect/Employer a return in detail, in such form and at such intervals as the Architect/Employer may prescribe, showing the staff and the numbers of the several classes of labour from time to time employed by the Contractor on the Site and such other information as the Architect/Employer may require.

2. **COMPLIANCE WITH LABOUR REGULATIONS:**

During continuance of the contract, the Contractor and his sub contractors shall abide at all times by all existing labour enactments and rules made there under, regulations, notifications and bye laws of the State or Central Government or local authority and any other labour law (including

rules), regulations, bye laws that may be passed or notification that may be issued under any labour law in future either by the State or the Central Government or the local authority. Salient features of some of the major labour laws that are applicable to construction industry are given below. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made there under, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/bye laws/Acts/Rules/regulations including amendments, if any, on the part of the Contractor, the Architect/Employer shall have the right to deduct any money due to the Contractor including his amount of performance security. The Architect/Employer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer.

The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point of time.

3. SALIENT FEATURES OF SOME MAJOR LABOUR LAWS APPLICABLE TO ESTABLISHMENTS ENGAGED IN BUILDING AND OTHER CONSTRUCTION WORK

(The law as current on the date of bid opening will apply)

- a) Workmen Compensation Act 1923: The Act provides for compensation in case of injury by accident arising out of and during the course of employment.
- b) Payment of Gratuity Act 1972: Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years service or more or on death the rate of 15 days wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees.
- c) Employees P.F. and Miscellaneous Provision Act 1952 (since amended): The Act Provides for monthly contributions by the employer plus workers @ 10% or 8.33%. The benefits payable under the Act are:
 - (i) Pension or family pension on retirement or death, as the case may be.
 - (ii) Deposit linked insurance on the death in harness of the worker.
 - (iii) Payment of P.F. accumulation on retirement/death etc.
- d) Maternity Benefit Act 1951: The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.
- e) Contract Labour (Regulation & Abolition) Act 1970: The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by Law. The Principal Employer is required to take Certificate of Registration and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer if they employ 20 or more contract labour.
- f) Minimum Wages Act 1948: The Employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of Buildings, Roads, and Runways are scheduled employments.
- g) Payment of Wages Act 1936: It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.
- h) Equal Remuneration Act 1979: The Act provides for payment of equal wages for work of equal nature to Male and Female workers and for not making discrimination against Female employees in the matters of transfers, training and promotions etc.
- i) Payment of Bonus Act 1965: The Act is applicable to all establishments employing 20 or more employees. The Act provides for payments of annual bonus subject to a minimum of 8.33% of wages and maximum of 20% of wages to employees drawing Rs.3500/-per month or less. The bonus to be paid to employees getting Rs.2500/- per month or above up to Rs.3500/- per month

shall be worked out by taking wages as Rs.2500/-per month only. The Act does not apply to certain establishments. The newly set-up establishments are exempted for five years in certain circumstances. Some of the State Governments have reduced the employment size from 20 to 10 for the purpose of applicability of this Act.

- j) Industrial Disputes Act 1947: The Act lays down the machinery and procedure for resolution of Industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.
- k) Industrial Employment (Standing Orders) Act 1946: It is applicable to all establishments employing 100 or more workmen (employment size reduced by some of the States and Central Government to 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and gets the same certified by the designated Authority.
- l) Trade Unions Act 1926: The Act lays down the procedure for registration of trade unions of workmen and employers. The Trade Unions registered under the Act have been given certain immunities from interior and criminal liabilities.
- m) Child Labour (Prohibition & Regulation) Act 1986: The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulation of employment of children in all other occupations and processes. Employment of Child Labour is prohibited in Building and Construction Industry.
- n) Inter-State Migrant workmen's (Regulation of Employment & Conditions of Service) Act 1979: The Act is applicable to an establishment which employs 5 or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, traveling expenses from home up to the establishment and back, etc.
- o) The Building and Other Construction workers (Regulation of Employment and Conditions of Service) Act 1996 and the Cess Act of 1996: All the establishments who carry on any building or other construction work and employs 10 or more workers are covered under this Act. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be modified by the Government. The Employer of the establishment is required to provide safety measures at the Building or construction work and other welfare measures, such as Canteens, First-Aid facilities, Ambulance, Housing accommodations for workers near the work place etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.
- p) Factories Act 1948: The Act lays down the procedure for approval at plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing 10 persons or more with aid of power or 20 or more persons without the aid of power engaged in manufacturing process.

4. ARBITRATION (GCC Clause 25.3)

If the decision of the Adjudicator as described in clause 20 is not acceptable, then the disputes can be referred to the Arbitrator.

The procedure for arbitration will be as follows:

- (a) In case of Dispute or difference arising between the Employer and a domestic contractor relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Arbitration and Conciliation Act, 1996. The arbitral tribunal shall consist of 3 arbitrators one each to be appointed by the Employer and the Contractor. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the Parties and shall act as Presiding arbitrator. In case of failure of the two arbitrators appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the arbitrator appointed subsequently, the Presiding Arbitrator shall be appointed by the * Indian Council of Arbitration/President of the Institution of Engineers (India)/The International Centre for Alternative Dispute Resolution (India).
- (b) If one of the parties fails to appoint its arbitrator in pursuance of sub-clause (a) above within 30 days after receipt of the notice of the appointment of its arbitrator by the other party, then the * Indian Council of Arbitration/President of the Institution of Engineers (India) shall appoint the arbitrator. A certified copy of the order of the *Indian Council of Arbitration /President of

the Institution of Engineers (India), making such an appointment shall be furnished to each of the parties.

- (c) Arbitration proceedings shall be held at **Pune**, India, and the language of the arbitration proceedings and that of all documents and communications between the parties shall be English.
 - (d) The decision of the majority of arbitrators shall be final and binding upon both parties. The cost and expenses of Arbitration proceedings will be paid as determined by the arbitral tribunal. However, the expenses incurred by each party in connection with the preparation, presentation, etc. of its proceedings as also the fees and expenses paid to the arbitrator appointed by such party or on its behalf shall be borne by each party itself.
- Performance under the contract shall continue during the arbitration proceedings and payments due to the contractor by the owners shall not be withheld, unless they are the subject matter of the arbitration proceedings.

5. PROTECTION OF ENVIRONMENT:

Add the following as GCC Clause 16.2:

The contractor shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.

During continuance of the contract, the contractor and his sub-contractors shall abide at all times by all existing enactments on environmental protection and rules made there under, regulations, notifications and bye-laws of the State or Central Government, or local authorities and any other law, bye-law, regulations that may be passed or notification that may be issued in this respect in future by the State or Central Government or the local authority.

Salient features of some of the major laws that are applicable are given below:

The Water (Prevention and Control of Pollution) Act, 1974, this provides for the prevention and control of water pollution and the maintaining and restoring of wholesomeness of water. 'Pollution' means such contamination of water or such alteration of the physical, chemical or biological properties of water or such discharge of any sewage or trade effluent or of any other liquid, gaseous or solid substance into water (whether directly or indirectly) as may, or is likely to, create a nuisance or render such water harmful or injurious to public health or safety, or to domestic, commercial, industrial, agricultural or other legitimate uses, or to the life and health of animals or plants or of aquatic organisms.

The Air (Prevention and Control of Pollution) Act, 1981, this provides for prevention, control and abatement of air pollution. 'Air Pollution' means the presence in the atmosphere of any 'air pollutant', which means any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.

The Environment (Protection) Act, 1986, this provides for the protection and improvement of environment and for matters connected therewith, and the prevention of hazards to human beings, other living creatures, plants and property. 'Environment' includes water, air and land and the inter-relationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organism and property.

The Public Liability Insurance Act, 1991, This provides for public liability insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling hazardous substances and for matters connected herewith or incidental thereto. Hazardous substance means any substance or preparation which is defined as hazardous substance under the Environment (Protection) Act 1986, and exceeding such quantity as may be specified by notification by the Central Government.

6. Supply of materials:

- a) The successful Bidder should make his own arrangement to obtain / import all materials required for the work.

- b) The Work shall be carried out using high quality materials and products from good source and reputed manufacturer respectively. The tenderer / contractor shall furnish the details of sources and manufacturers of materials and products, which they intend to use in the Work if their tender is acceptable.
- c) Quality assurance should be strictly adhered to. All materials are subject to inspection and approval of the Employer/Architect before use in the Work. All Work carried out and materials supplied shall conform to relevant latest Indian Standard Specification.
- d) The Contractor shall furnish the Employer for approval adequate samples of all materials to be used in Work and to permit tests and examinations thereof. All materials used in the Work shall be strictly as per approved samples and approved make.
- e) All mock ups / finishes / quality shall be approved by Employer/Architect.
- f) All materials which are rejected shall be forthwith removed from the site.

7. Insurance:

The **Contractor** shall be responsible for any injury to persons, animals or things and for all structural damage to property which may arise from the operation or neglect of himself and or any nominated Direct Subcontractors, or Direct Sub-Contractors / Contractor's Employees and or third party whether such injury or damage arising from carelessness, accident or any other cause whatsoever, in any way connected with the execution of work.

The cover taken by the **Contractor** towards Third Party Liability shall be for a value of Rs. 5 Lakhs (Rupees Five Lakhs only) for a single event and there shall be no upper limit on the number of such events. The Bidders are expected to include all the charges towards taking all insurance cover, charges towards premium etc., in the quoted rates and no extras / claims shall be entertained on account of the Bidders' failure to comply with this requirement.

The **Contractor** shall take required insurance cover with an approved insurance company and deposit the policy with the Owner well before commencement of work

8. Joint Inspection

Employers / Architect representatives' shall conduct a joint inspection with the Contractors' authorized representative at every stage of the work, immediately upon completion of such stage of works. The purpose of the joint inspection is to observe and record any deviations from the specified tolerances / levels, plumb or any quality defects or any such issues which require immediate attention / action from the Interior Contractor to make good or rectify such defects or observations jointly recorded. Such joint inspections can be held at any time as deemed fit and shall be binding on the Contractor to act upon and implement without any extra cost the directions arising out of such joint inspections. Failure / delay in holding such joint inspections shall not absolve the Interior Contractor from his responsibilities to rectify any defects which may be subsequently noticed at any time after the respective stages of work.

9. Photographs and Video Cassettes:

The Contractor shall take photos and video from the locations approved by the / Architect to show the progress of work at weekly intervals throughout the construction period and furnish photographs and video cassettes of required duration duly indicating there in the specified number of negative / prints affixed in albums. Each photograph shall be marked with the description of the photograph and location from which it was taken.

The ownership and copy right of all photographs and negatives shall be vested in the Employer and are not to be used without his permission under any circumstances. Negatives and prints shall be handed over to the Architect monthly.

10. Schedule of Quantities and Technical Specifications

In case of conflict between item description in "Bill of Quantities" and "Technical specifications" the following priority shall govern:

Bill of Quantities & Preamble

Technical Specifications

11. DOCUMENTATION:

The contractor shall submit the All guarantee certificates and documents applicable to any item before submission of Final Bill:

Any other Material and work inspection reports called for by Employer /Architects as found necessary.

12. Permissions from Statutory body:

Permission required to be obtained from local government and connected bodies for establishing the site office and executing the work should be bidder's responsibility.

**Signature of Tenderer
With Date and Seal**

SECTION 5

**TECHNICAL
SPECIFICATIONS**

SPECIFICATION

FOR

PROVISION OF FULL HD VIDEO

AND AUDIO SYSTEMS ALONG WITH

SYSTEM INTEGRATION

Client: Indian Institute of Tropical Meteorology

Project: MULTI-FUNCTION TRAINING FACILITY BUILDING

Project Location: Dr. HOMI BHABHA ROAD, PASHAN, PUNE

Engineering Consultants: Archivista Engineering Projects Pvt. Ltd. Chennai

CONTENTS

1.0	SCOPE
2.0	SITE CONDITION
3.0	ELECTRICAL SYSTEM DETAILS
4.0	STANDARDS
5.0	GENERAL REQUIREMENTS
6.0	RECOMMENDED MAKES

SCOPE

- 1.1 This Specification covers the Requirements of Design, Assembly, Testing, Supply, Commissioning and approval from all relevant authorities, of Sound reinforcement PA systems, Audio video systems and Full HD Video Colour Camera Syatems with Control Panels. The system should follow necessary standards mentioned in norms and it will be connected to necessary outlets/ports to be provided.

STANDARDS

NOTE: The SPL (Sound power level) from the entire sound reinforcement system should not be less than 85dB.

The following are the codes that all the equipment should comply to:

1. IEC- 268 (5) - 2000, Sound system equipment- Loudspeakers, simulated program signal
2. IEC- 268 (4) - 1997, Sound system equipment- Microphones
3. AES-2-2003) : AES Recommended Practice -- Specification of loudspeaker components used in professional audio and sound reinforcement
4. AES-11id-2006 : AES Information document for Preservation of audio recordings - Extended term storage environment for multiple media archives
5. AES56-2008 : AES standard on acoustics - Sound source modeling - Loudspeaker polar radiation measurements
6. AES50-2005 : AES standard for digital audio engineering - High-resolution multi-channel audio interconnection
7. AES42-2006 : AES standard for acoustics -- Digital interface for microphones

GENERAL REQUIREMENTS

PA systems, Audio video systems and Full HD Video Colour Systems comprise of following main equipment.

THE VENDOR WILL DELIVER 85 DB +/- 3 DB TO ALL POINTS , PROVIDE DISPLAY OF VOTING,PROVIDE AUTO CCTV CONTROL,PROVIDE AUDIO VIDO TRANSMISSION TO VARIOUS ROOMS,THE VENDOR TO ADHERE TO ASSEMBLY PROTOCOL.

TECHNICAL SPECIFICATIONS

AUDIO SYSTEMS

MIXING CONSOLE

1). SITC of 24 Channel Digital Audio Mixer

Frequency Response

Mic input to Line output +0/-1dB, 20Hz – 20kHz

Stereo input to master output +0.5/-0.5dB, 20Hz – 20kHz

T.H.D. & Noise (10Hz - 22kHz)

Mic In (min gain) to Bus output 0.006% @ 1kHz

Mic In (max gain) to Bus output 0.008% @ 1kHz

Stereo input to master output 0.005% @ 1kHz

Mic Input E.I.N.

22Hz-22kHz bandwidth, unweighted <-126dBu (150 Ohm source)

Residual Noise

Master output; no inputs routed, Mix fader @0dB <-88dBu

CMRR 80dB @ 1kHz Mic input

Sampling Frequency 48kHz

Convertor Resolution 24 bit

Latency

Mic Input to Bus output < 1ms @48kHz

DSP Resolution 40-bit floating point

Internal Clock

Accuracy < +/- 50ppm

Jitter < +/- 5ns

Input & Output Levels

Mic Inputs +26dBu max

Stereo Inputs / Returns +22dBu max

Bus Outputs +22dBu max

Nominal Operating Level 0dBu (-22dBFS)

Input & Output Impedances

Mic Inputs 6.8 kOhms

All other analogue Inputs >10 kOhms

Line Outputs <75 Ohms

Oscillator 20Hz to 20kHz Sine/Pink Noise, variable level

Filters

Channel HP Filter 22Hz-1kHz, 18dB per octave

EQ (Inputs and Bus Outputs)

HF 800Hz-20kHz, +/-15dB shelving

Hi-Mid 22Hz-20kHz, +/-15dB, Q=0.3-6.0

Lo-Mid 22Hz-20kHz, +/-15dB, Q=0.3-6.0

LF 22Hz-500Hz, +/-15dB shelving

Metering

7x 8 segment meters for selected channel/bus, masters & monitors

Each fader strip offers 4 segment level plus gain reduction & Gate Closed status

MICROPHONES

2). SITC of Professional dynamic mic

Polar pattern: supercardioid

Frequency range: 70 to 20,000 Hz

Sensitivity: 2.6 mV/Pa (-52 dBV)

Max. SPL for 1%/3% THD: 147/156 dB SPL

Equivalent noise level (IEC 60268-4): 18 dB-A

Signal/noise ratio (A-weighted): 76 dB

Impedance: ≤600 ohms

Recommended load impedance: ≥2000 ohms

Connector: 3-pin XLR with on/off switch.

3). SITC of Professional condenser mic

Polar pattern	cardioid
Frequency range	65 Hz to 20 kHz
Sensitivity	4 mV/Pa (-48 dBV)
Max. SPL	140 / 145 dB SPL (for 1% / 3% THD)
Equivalent noise level	25 dB-A
Signal/noise ratio (A-weighted)	69 dB
Impedance	<= 200 ohms
Recommended load impedance	>= 2.000 ohms
Powering	typ. 4.3 mA
Power requirement	9 to 52 V phantom power to DIN 45596
Connector	3-pin XLR

4). SITC of 50 cm hyper-cardioid gooseneck microphone

Polar pattern	Hypercardioid
Frequency range	50 to 19,000 Hz
Sensitivity	12 mV/PA = -38 dBV re 1 V/Pa
Max. SPL	125 dB (for 1% THD)
Equivalent noise level	<21 dB-A
Signal/noise ratio (A-weighted)	>73 dB
Impedance	<=600 ohms
Recommended load impedance	>=2,000 ohms
Supply voltage	9 to 52 V phantom power to IEC 61938 (DPA adapter integrated)
Powering	<3 mA
Connector	3-pin male XLR

5). SITC of Wireless handheld microphone system

Receiver

30 MHz tuning range

Half 19" all metal case diversity receiver

Automatic setup function for quick and easy operation

12 pre-programmed frequencies per group

Infrared link of all frequency and setup data to the transmitter

Transmitter battery status monitoring

Programmable warning functions using a two-color display backlighting to indicate critical operation conditions (low battery, audio peak, RF low)

Compatible with antenna splitters, power supplies, and high quality directional and omni-directional antennas

Sensitivity 7 dBmicroV / -100 dBm

Diversity System Microprocessor-controlled diversity

Modulation Wideband FM

Audio bandwidth 35 – 20 000 Hz (\pm 3 dB)

T.H.D. \leq 0.3 %

SNR (A-weighted) typ. 120 dB(A)

Audio outputs 1 x XLR sockets balanced

1 x TS ¼" / 6.3 mm jack sockets unbalanced

Transmitter

Switching bandwidth \leq 30 MHz

RF output power 10 or 50 mW

Modulation / Bandwidth Wideband FM

Microphone capsules – condenser (cardioid)

Max. SPL \leq 144 dB SPL

Audio bandwidth 35 – 20 000 Hz (\pm 3 dB)

T.H.D. \leq 0.7 %

SNR (A-weighted) > 120 dB(A)

6. SITC of Wireless Tie-Clip microphone system

Receiver

30 MHz tuning range

Half 19" all metal case diversity receiver

Automatic setup function for quick and easy operation

12 pre-programmed frequencies per group

Infrared link of all frequency and setup data to the transmitter

Transmitter battery status monitoring

Programmable warning functions using a two-color display backlighting to indicate critical operation conditions (low battery, audio peak, RF low)

Compatible with antenna splitters, power supplies, and high quality directional and omni-directional antennas

Body pack transmitter

RF output power	10 or 50 mW
Modulation	Wideband FM
Audio input	TB3M / 3-pin mini-XLR socket (max. 2.5 Vrms)
Audio bandwidth	35 – 20 000 Hz (\pm 3 dB)
T.H.D.	\leq 0.7 %
SNR (A-weighted)	$>$ 120 dB(A)

7. SITC of Extremely rugged, studio boundary layer microphone

Polar pattern	supercardioid
Frequency range	50 to 18,000 Hz
Sensitivity	22 mV/Pa (-30 dBV)
Max. SPL	120 dB
Equivalent noise level	22 dB-A
Signal/noise ratio	72 dB (A-weighted)
Impedance	150 ohms
Connector	Switchcraft TA3F
Cable	4,6 m (15ft.)
ROHS	OK

DIGITAL SIGNAL PROCESSING

8. SITC of 12 analog mic / line input, 8 analog output, networked signal processor

Front Panel Led Indicators:

Per Input: Signal Present, CLIP, 48V (Input only)

Other: COM, STAT, ERR, PWR

Analog Inputs: 12 electronically balanced on Phoenix Combicon removable
Screw connectors

Mic/Line Inputs: Nominal gain 0dB, electronically switchable up to +48dB, in +6dB
steps

Input Impedance: 3.5k ohms

Maximum Input Level: +20dBu with 0dB input gain, +8dBu with 12dB gain

CMRR: >75dB at 1KHz

Input Noise (E.I.N.): <-128dBu typical with 150 $\square\square$ source

A/D Latency: 37/Fs [0.77ms@48k]

Analog Outputs: 8 electronically balanced on Phoenix/Combicon
removable screw connectors

Maximum Output Level: +19dBu

Frequency Response: 20Hz-20KHz (+0.5dB/-1dB)

THD: <0.01% 20Hz to 20KHz, +10dBu output

Dynamic Range: 108dB typical, 22Hz-22KHz unweighted

Crosstalk: <-75dB

Output Impedance: 40 ohms balanced and 20 $\square\square$ unbalanced

D/A Latency: 29/Fs [0.60ms@48k]

Control Ports: 12 inputs and 6 outputs

Control Input Voltage: 0 to 4.5v

Control Input Impedance: 4.7k ohms to +5V (2-wire mode), >1Mega ohms (3-wire
mode)

Logic Output Voltage: 0 or +5V unloaded

Logic Output Impedance: 440 ohms

Logic Output Current: 10mA source, 60mA sink

Watchdog Output: Phoenix/Combicon connector for failsafe control

Opto Output Current: 14mA maximum

Withstanding Voltage: 80V maximum (Off)

Series Impedance: 220 ohms (isolated)

Control Network:

Connectors: RJ45 Ethernet connector

BLU link:

Connectors: 2 x RJ45 Ethernet connectors

Latency: 11/Fs [0.23ms@48k]

Pass Through Latency: 4/Fs [0.08ms@48k]

9. SITC of Touch screen programmable remote wall controller

Ethernet Connectivity

9 12-48V DC or PoE Powering

9 Touch-Screen Display

9 Customizable Navigation

Password Security

9 Sleep Feature

Front Panel Led Indicators:

Per Input: Signal Present

10. SITC of Power over Ethernet / 24 VDC Direct Powering for the Touch screen programmable remote wall controller

11. SITC of Full HD, Portable Control Panel

Architecture

Operating System: [Genuine](#) Windows® 7 Professional with Service Pack 1 64-bit

Processor Name : Intel® Core™ i7-2640M Processor 2.80 GHz with Turbo Boost up to 3.50 GHz*1

Chipset : Intel® HM67 Express Chipset

Cache Memory: 4 MB (L3 Cache)

Main Memory : Pre-installed/Max8GB (4GB (Custom Module) x 2)
DDR3SDRAM*2

Memory Speed 1333 MT/s

Flash Memory : Flash Memory256 GB*3 (128 GB x 2(RAID 0)*4, Serial ATA)

Graphics : Graphics Accelerator Intel® HD Graphics 3000

Display Type : 13.1(33.27cms) wide (Full HD: 1920x1080) TFT colour display
(VAIO Display Premium, LED backlight, Adobe RGB 96% coverage)

Interface

USB Hi – Speed USB (USB 2.0) Type A Connector x 1*5

Network (RJ45) Connector 1000BASE-T/100BASE-TX/10BASE-Tx1

Display Output Connector Analogue RGB, mini D-sub 15 pin x 1

Headphone Stereo, Mini Jack x 1

HDMI In / Out Connector HDMI Out x 1 (3 D Supported)

Memory Stick Slot “Memory Stick Duo” (“Memory Stick PRO-HG”
compatible, “MagneticGate” (“MagicGate’ is not

Supported for 256 MB or less capacity media.))*6

SD Memory Card Slot SD memory card (SDHC, SDXC compatible, UHS
(SDR50) supported, Copyright protection (CPRM)

Wireless Connection

Wireless LAN Type IEEE 802.11a/b/g/n*7

Wireless LAN Data Rate Maximum transmission speed : 300 Mbps*8,
Maximum receipt speed : 300 Mbps*8

Bluetooth Bluetooth® standard Ver.3.0 + HS

Security/Utilities

Fingerprint Sensor Yes

Security Chip TCG ver.1.2 certified

Camera

Front Side Camera HD web camera powered by “Exmor” (Resolution :
1280 x 1024, Effective Pixes : 1.31Mega pixels)

Audio Sound Chip Intel® High Definition Audio
Speaker Internal, Stereo speakers
Microphone Internal, Monaural microphone
Audio TechnologyDolby® Home Theater® v4,
Digital Noise Cancelling

Keyboard/Input Device Keyboard 19.05 mm key pitch / 1.0mm keystroke,
83 keys, Backlit Keyboard

Touchpad Touchpad (Gesture supported)

Included Software

AV Entertainment Media Gallery, Windows® Media Center, PowerDVD
BD, Quick Web Access, TriDef 3D Ignition, TriDef 3D
Photo Viewer

Content Creation / PMB VAIO Edition, Adobe® Photoshop® Elements 9,
Editing Roxio Easy Media Creator.

Word Processor /Speradsheet Microsoft® Office Starter 2010*10
Tool Evernote for VAIO, Adobe® Reader® X,

Utilities 2 VAIO 3D Portal, Media Go, TrackID™*11

Security Support Trend Micro™ Titanium™ Maximum Security 60
days*13, TrueSuite® VAIO Care, VAIO Care Rescue,
VAIO Update, VAIO Transfer Support, Norton™
Online Backup 60-day Free Trial*13

Optical Disc Drive

Drive *Blu-ray Disc™ Drive with DVD SuperMulti*18*
Maximum Reading Speed BD-ROM: 6x / BD-R: 6x(SL), 6x(DL) / BD-RE: 6x(SL),
6x(DL) / **DVD+R**: 8x(SL), 6x(DL) / **DVD-R**: 8x(SL),
6x(DL) / **DVD+RW**: 8x / DVD-RW: 8x / **DVD-ROM**: 8x /
DVD-RAM: 5x / CD-ROM: 24x / CD-R: 24x / CD-RW: 24x

Maximum Writing Speed BD-R: 6x(SL), 6x(DL) / BD-RE: 2x(SL), 2x(DL)/
DVD+R: 8x(SL), 6x(DL) / **DVD-R**: 8x(SL), 6x(DL) /
DVD+RW: 8x / DVD-RW: 6x / **DVD-RAM**: 5x / CD-R: 24x / CD-RW: 10x

MAIN PA

12. SITC of 24-Channel Digitally Controlled Column loudspeaker

Sensitivity 1.0 V (For rated power output),
Freq. Range 120 Hz to 18 kHz,
Max SPL 102 dB peak, 99 dB pgm @ 100 Ft. (30.5 meters):
(3-octave bandwidth centered at 2 kHz)
Horizontal Dispersion: 150° up to 3 kHz; 120° above 3 kHz
Vertical Opening Angles: 5°, 10° and 15°
Aiming Angle: adjustable from -30° to +30°
Typical Throw: 195 Ft. (60 meters)
Beam Control: Effective down to 250 Hz
Number of Transducers: 24
Number of Amplifier Channels: 24
Hanging Method: 3-point hinge or metric M6 eye-bolts
Enclosure: Extruded Aluminum with perforated steel grille
Transducers: Coaxial with a 4" woofer and triple 1" tweeters , RH model
SSL4-3: 25 Watts RMS, 50 Watts program

Inputs: Analog Audio:2 inputs (primary & secondary), Phoenix 6-pin connectors
(looping 3-in, 3-out)

CobraNet: Dual RJ45 connectors (for CAT 5 copper cable)

AES/EBU: Phoenix connector

Power: IEC power connector

Controls (Rear Mounted): Mute button, Up & Down Output Level push buttons,10
dB Input pad (on Analog 1 input)
Push-To-Reset circuit breaker Preset Configuration
Selector (10 configurations)

Computer Controls: Gain, Mute, On/Standby, Input Selection; Compression,8-Band
Parametric EQ, Shelving & Rolloff Filters, Delay,Preset
Configuration Selection.

Status Indicators: Power, Signal, Overdrive, Thermal, Mute, Input Pad, Preset
Configuration Readout.

DSP/AMPLIFIER

Type: 8-channel, Class D amplifier/DSP processor (3 in 24 Channel)

Input Impedance: >20K Ohm balanced differential

Max Input: +24 dBu (Pad in);+14 dBu @ 1V sensitivity (Pad out)

Power Rating: 50 Watts RMS per channel, 150 Watts Burst

Freq. Range: + 3, - 3 dB, 100 Hz to 20 kHz

THD Distortion: < 0.05 % typical

Hum & Noise: <100 dB (A weighted)

13. SITC of Wall mounting hinge kit for 24 element columns, includes both male and female hinge plates.

14. SITC of Ultra Long Excursion Dual 18" Arrayable Subwoofer

System

Frequency Range (-10 dB): 25 Hz - 160 Hz

Frequency Response (± 3 dB): 28 Hz – 120 Hz

Recommended Bandpass: 25 Hz - 80 Hz

Input Power Rating: 4000 W Continuous, 16,000 W Peak (AES / 2 hour)

Sensitivity: 95 dB, 1W @ 1m (35-120 Hz)

Maximum Peak Output: 143 dB SPL, 1m (2_, half-space, ground-based application)

137 dB SPL, 1m (4_, free-space, suspended application)

Recommended Amplification: 2 x 2400 - 4000 W into 8 ohms (transducers powered individually)

4800 - 8000 W into 4 ohms (transducers powered in parallel)

Recommended Signal dbx® DriveRack® 4800,

Processing: Omnidrive™, BSS Audio Soundweb™ London and Other Digital System Controllers supported

Transducers

Low Frequency: Two 2269H, 457 mm (18 in) dia., 100 mm (4 in) Dual Coil, neodymium Differential Drive®, Direct Cooled™

Nominal Impedance

(each transducer): 8 ohms

Input Power Rating 2000 W Continuous, 8000 W Peak (AES / 2 hour)

(each transducer) 1200 W Continuous, 4800 W Peak (100 hour)

Enclosure

Cabinet Construction: Wedge frustrum 5 degree side angle enclosure. PlyMax™ engineered wood composite structure, DuraFlex™ finish, 12 handles

Grille: Black perforated steel, foam backed

Input Connectors: Neutrik® Speakon® NL-4 and NL-8 (2x each),
Transducers circuited individually (1±, 2±)

15. SITC of Dual Channel Power Digital Amplifier

Performance

Frequency Response (at 1 watt, 20 Hz – 20 kHz): ±0.25dB.

Signal to Noise Ratio below rated full-bandwidth power, A-weighted: > 112 dB.

Total Harmonic Distortion (THD) at full rated power: < 0.1%.

Intermodulation Distortion (IMD) 60 Hz and 7 kHz at 4:1, from full rated output to –35 dB: < .2%.

Damping Factor (20 Hz to 100 Hz at 8 ohms): > 5000.

Crosstalk (below rated power, 20 Hz to 1 kHz): > 80 dB.

Common Mode Rejection (CMR) (20 Hz to 1 kHz): > 70 dB typical.

Latency (analog, digital inputs): 1.13 mS analog, 1.81 mS digital (96 kHz).

A/D, D/A Converters: 24-bit 192 kHz Cirrus Logic.

Digital Input: AES/EBU, 24-bit, 32-96 kHz. Onboard sample-rate converter.

Network: Onboard TCP/IQ and HiQnet, compatible with standard 100 Mb Ethernet hardware.

DSP: 24-bit conversion with 32-bit, floating-point DSP processing. World-class IIR and linear phase FIR filters. Has 64 assignable filters with 9 different filter types. Includes all-pass filters, over 2 seconds of delay available per channel, and dual uncorrelated-noise and sine-wave generators.

Load Impedance: (Note: Safe with all types of loads) Stereo: 1/2/4/8/16 ohms. Bridge Mono: 2/4/8 ohms.

Input Sensitivity (referenced to 8 ohm rated output): Adjustable in 0.1V steps from 1.4V to 7.75V.

Front Panel Indicators, Controls and Connectors

Indicators: Bridge mode, Ready, Signal level, Clip, Thermal error, Fault, Network data, Power, AC mains.

LCD Control Screen and Controls: These let the user adjust the amplifier's attenuation and muting, configure the amp, set up and view error monitoring (such as temperature and load supervision), set IP and HiQnet addresses from the front panel, and recall DSP presets. The presets allow the user to quickly reconfigure the amp for various applications.

Level Controls (Encoders): Speed-sensitive rotary encoders, 0.5 dB steps, range 0 to –100 dB.

These two knobs affect the Channel-1 and Channel-2 output levels. They also select Menu items and adjust parameter values that are displayed on the LCD Control Screen.

USB 2.0 Connector: Accepts a USB drive to transfer presets from the drive to the amplifier DSP, and vice versa.

Back Panel Connectors, Controls, and Indicators

Connectors: Balanced XLR analog inputs, balanced analog XLR loop-thru outputs, AES/EBU digital input, AES/EBU digital loop-thru output, 4-Pole Speakon output connectors, binding post output connectors, power cord, EtherCon® Ethernet connector for networking via HiQnet or CobraNet.

Reset Switch/Circuit Breaker: If the current draw of the amplifier exceeds safe limits, this breaker automatically disconnects the power supply from the AC mains. The switch resets the circuit breaker.

Preset Indicator: LED flashes to signal the number of the current preset if active. LED is green if the preset values have not been changed once loaded. LED is yellow if the preset values have been changed since they were loaded.

Construction

Cooling: Dual-zone, microprocessor controlled, continuously variable speed fans, front-to-back airflow.

STAGE MONITORS

16. SITC of 15" two-way dedicated floor monitor system

Frequency Range (-10 dB): 60 Hz - 20 kHz

Frequency Response (± 3 dB): 70 Hz - 20 kHz

Coverage Pattern: 50° x 90° nominal

Crossover Modes: Passive / Bi-amp

Crossover Frequency: 1.1 kHz

Power Rating: Passive Full-Range 800 W / 1600 W / 3200W, 2 hrs¹
(Continuous / Program / Peak) Passive Full-Range 600 W / 1200 W / 2400W, 100 hrs

Power Rating: Bi-amp LF: 800 W / 1600 W / 3200 W, 2 hrs
(Continuous / Program / Peak) Bi-amp LF: 600 W / 1200 W / 2400 W, 100 hr

Power Rating:
(Continuous / Program / Peak) Bi-amp HF: 75 W / 150 W / 300 W, 2 hrs

Maximum SPL: 127 dB SPL continuous (133 dB SPL peak)²
System Sensitivity (1w @ 1m): 98 dB SPL

LF Driver: 1 x JBL 2265H 380 mm (15 in) Differential Drive® woofer
8 Ohms

HF Driver: 1 x JBL 2452H, 100 mm (4.0 inch) diameter voice coil, 38 mm
(1.5 inch) exit, neodymium magnet compression driver 8 Ohms

Nominal Impedance: 8 Ohms

Enclosure: Symmetrical stage monitor, 15/18 mm, plywood.

Finish: Black DuraFlex™ finish

Grille: Powder coated, black, 16 gauge perforated steel with acoustically transparent
black screen backing.

Input Connectors: Neutrik® Speakon® NL-4 (x2), one on each end

17. SITC of Dual Channel Digital Power Amplifier

Performance

Sensitivity (for full rated power at 4 ohms): 1.4 Vrms

Frequency Response (at 1 watt, 20 Hz to 20 kHz): +0 dB, -1 dB

Signal-to-Noise Ratio (below rated 1kHz power at 8 ohms): 103 dB (A weighted)

Total Harmonic Distortion (THD): < 0.5%

Damping Factor 20 Hz to 1 kHz: > 500

Crosstalk (below rated power): 20 Hz - 1 kHz: > 70 dB

Input Impedance (nominal): 20k ohms balanced, 10k ohms unbalanced

Maximum Input Signal: +22 dBu typical

Indicators

Signal Indicator: Green LED, one per channel, illuminates when a very low-level signal is present at input (may be used for troubleshooting cable runs).

-10 Indicator: Green LED flashes when output signal exceeds -10 dB below clip.

-20 Indicator: Green LED flashes when output signal level exceeds -20 dB below clip.

Ready Indicator: Green LED, one per channel, illuminates when the amplifier is ready to produce audio.

Clip Indicator: Red LED, one per channel, turns on at the threshold of audible distortion.

Temp Indicator: Red LED, one per channel, illuminates under excessive temperature conditions.

Power Indicator: Blue LED illuminates when the amplifier has been turned on and has power

Controls

Level: Two front-panel rotary level controls, one for each channel.

Power Switch: On/Off switch applies AC power to the amplifier.

Sel/Prev/Next Buttons: Three buttons near the LCD screen that are used to access menu items and front panel lockout.

LCD Screen: Backlit liquid crystal display that shows preset and processing status.

Integrated Processing

Input EQ: 6 parametric filters per channel with adjustable Q, ± 15 dB boost/cut. Also adjustable high and low shelving filters. This 8-filter EQ section can be bypassed.

Crossover Filters: Highpass and Lowpass per channel. Butterworth 6/12/18/24 dB per octave. Linkwitz-Riley 24/48 dB per Octave. Also includes ± 15 dB bandpass gain and polarity control.

Output EQ: 8 parametric filters per channel with adjustable Q, ± 15 dB boost/cut. This 8-filter EQ section can be bypassed.

Delay: For signal alignment of driver; 50 ms of total delay.

SubHarmonic Synth: Takes the low-frequency content of the input signal and "synthesizes" a new signal that is the same as the input signal but one octave lower.

The new synthesized signal is then mixed with the original signal to create the effect.

New users now have control over frequency, gain, and filter type.

Peakx Plus™ Limiter: User defeatable limiter that allows users to control Threshold, Attack, and Release times.

Presets: 30 total presets, 29 of which are user-definable

Input/Output Connectors

Input Connectors: XLR, one per channel

Link/Out Connector: Loop-thru signal from input connector for linking another amplifier, one per channel.

Output Connectors: Two Neutrik® Speakon® NL4MP output connectors. Channel-1 Speakon® is wired with Ch. 1 and Ch. 2 outputs for use with optional single 4-conductor cable. Two binding post outputs (in parallel with Speakon® connectors).

HiQnet™ USB Connector: Type B, connects to HiQnet™ network.

Construction

Chassis: Steel

Front Panel: Cast aluminum

Cooling: Proportional speed fan with front-to-rear airflow

MONITORS FOR CONTROL ROOM

18). SITC of 2 way powered Studio Monitor

System Type	5" (132 mm) Two-Way Bi-Amplified Powered Studio Monitor
Drivers (LF / HF)	5" (132 mm) 235G / 1" (25 mm) 231H
Magnetic Shielding	Yes
Level Control	Yes
LF Trim	+ 2 dB / -3 dB
HF trim +	2.5 dB / - 2.5 dB
Input Connectors	Balanced XLR, 1/4" (6.5 mm) TRS, Phono (RCA)
Frequency Range	43 Hz - 20 kHz
Amplifier Power	LF/HF: 55 W / 35 W
Max SPL Continous	Each / Pair: > 101 dB / > 107 dB
Max SPL Peak	Each / Pair: > 112 dB / > 118 dB
Input Sensitivity	92 dB SPL / 1m @ -10 dBV Bal Input
Crossover Frequency	1.7 kHz 4th-order Acoustic Linkwitz-Riley
Enclosure	5/8" (15 mm) MDF
Mounting	4 threaded mounting points conforming to Industry-standard pattern, 107.9 x 50.8 mm (4.25 x 2.00 in) center to center. M6 metric threads.

CEILING SPEAKER SYSTEMS

19. SITC of Ceiling Speakers

System:

Frequency Range (-10 dB): 80 Hz - 25 kHz
Nominal Sensitivity: 85 dB SPL @ 1 m (3.3 ft)
Crossover: 3.5 kHz, 3rd order low-pass plus 3rd order high-pass with conjugate
Rated Maximum SPL: 99 dB @ 1 m (3.3 ft), 25W tap
Transformer Taps: 70V: 25W, 12W, 6W taps
100V: 25W, 12W taps

Transducers:

Low Frequency: 115 mm (4.5 in) IMG (injection molded graphite), 24 mm (1 in) voice coil
High-Frequency: 12 mm (0.5 in) polycarbonate

Physical:

Backcan: Formed steel
Baffle/Rim: Medium impact polystyrene, fire rated UL94V-O
Secondary Attachment Point: Included
Termination: Screw-down terminals, touch-proof, UL, CE and VDE rated,
outside of backcan with conduit cover

20. SITC of Dual Channel Power Amplifier

Performance

Sensitivity (for full rated power at 4 ohms): 1.4 Vrms.
Frequency Response (at 1 watt, 20 Hz to 20 kHz): +0 dB, -1 dB.
Signal-to-Noise Ratio Rated as dBr to full rated 8 ohm power output (A-Weighted): >
103 dB
Total Harmonic Distortion (THD): < 0.5%.
Damping Factor (8 ohm) 10 Hz to 400 Hz: >200.
Crosstalk (below rated 8 ohm power): At 1kHz: > 85dB At 20kHz: >55dB
Input Impedance (nominal): 20 kilohms balanced, 10 kilohms unbalanced.
Load Impedance: 2 to 8 ohms per channel in Stereo, 4 to 8 ohms in Bridge Mono.

Controls

Level: Two front-panel rotary level controls, one for each channel.

LCD Screen: Back-lit LCD allows for crossover configuration, amp mode configuration and clip compressor configuration.

Menu/Prev/Next: Three buttons located near the LCD screen that are used to configure and access the integrated processing.

Power: Front-panel switch; on when in the IN position. Blue LED will illuminate when on.

Circuit Breaker: Back-panel breaker provides overload protection.

Integrated Processing

PureBand™ Crossover System

Crossover Filter: Linkwitz-Riley 24dB per octave

Crossover Frequency Range: 50 Hz - 3 kHz

Crossover Mode: Crossover (CH1=LPF, CH2=HPF), Low Pass (both channels LPF), High Pass (both channels HPF), Bridge (LPF or HPF)

Peakx™ Limiters: Channel independent clip limiter designed to provide maximum output while protecting your loudspeakers

Input/Output

Input Connectors: XLR (one per channel), 1/4 inch (one per channel), and RCA (one per channel). 1/4-Inch connectors can be used as loop-thru to distribute signal to additional amplifiers.

Output Connectors: Two 4-Pole Speakon® Output Connectors accept 2-pole or 4-pole Speakon® connectors. The top Speakon connector is wired for both channels so it can be used for bridge mono wiring or for stereo wiring of two speakers to a single Speakon connector.

One pair of back-panel binding posts per channel; accepts banana plugs or bare wire.

21. SITC of 100V Line matching transformer for the above mentioned amplifier.

CABLES AND ACCESSORIES

22. SITC of Six Channel Active Direct Box, Line Mixer and Microphone / Line Splitter

Channels 1 – 6

Input Impedance : 2 MegOhm

Input Headroom + 21dB

Output Level (Max)+ 26 dB

Signal to Noise ratio@ Unity -98 dB Unweighted -104 dB 'A' weighted

Distortion @ Unity Gain .003% THD, 0dB,1KHz

Dynamic Range 124 dB Hi Z In/Out Connectors Jack

Balanced Output Connector XLR

Master Section

OutputSignal to Noise ratio -90 dB Unweighted -96dB 'A' weighted Note: All inputs @ unity,Master @ unity

Output Level (Max) + 26 dB

Output Impedance 600 ohms

Distortion @ Unity Gain .006% THD, 0dB,1KHz

Output Connectors XLR, Jack

Splitter Section

Maximum Level + 20dB

Input Impedance Mic: 5 KOhms, Balanced Line: 20 KOhms, Balanced

Input Connector XLR

Frequency Response 20Hz—20KHz ± 0.5 dB

23. SITC of Line balancer and signal distributor

The distribution amplifier shall have two (2) inputs and sixteen (16) outputs. The unit shall be capable of mono (16 mono outputs) or stereo operation (8 stereo outputs) via front panel switches. Each output shall be assignable to either or both of the master inputs. Each input

shall be microphone or line level switchable by means of rear panel switches. Additional 20 dB gain switches shall be built-in for each input, applicable to either a mic or line level signal. Each input shall have a front panel screwdriver level adjustment. 15V phantom power shall be provided via a rear panel switch for microphone inputs. Each output shall have a front panel screwdriver adjustment. Inputs and outputs shall be active balanced screw terminal connectors. The unit shall be UL and cUL listed.

24. SITC of Professional audio CD player with iPod docking station

Features

Plays audio CDs, MP3 CDs and WAV file CDs
Dock connector for Apple iPod charging and playback
iPod video playback from S-video or composite output
CD TEXT and ID3 tag support
Continue, Random and Program play modes
Repeat All and Repeat Single play modes
Index Search
Shock/skip prevention memory buffer
±12% pitch control (analog outputs only)
RCA unbalanced line outputs (CD and iPod)
Coaxial and Optical S/PDIF digital out (CD only)
1/4" stereo headphone output
2u rack mountable
Wireless 55-key remote control

Input / Output

AUX IN (UNBALANCED) Jack

- Connector: 3.5 mm stereo mini jack Reference Input
Level: -16 dBV Maximum Input Level: 0 dBV Input impedance: 22 k ohms

ANALOG OUTPUT (UNBALANCED)

- Terminal Connector: RCA pin jack CD Reference Output
Level: -10 dBV CD Maximum Output Level: +6 dBV
- Output Impedance: 200 ohms

PHONES Jack

- Connector: Standard Stereo Jack Maximum Output

Level: 20 mW + 20 mW Load Impedance: 32Ω

DIGITAL OUTPUT (OPTICAL) Terminal

- Connector: Optical Jack Compatible Signal Format: IEC-60958 Type II (S/PDIF)

DIGITAL OUTPUT (COAXIAL) Terminal

- Connector: RCA Pin Jack Compatible Signal Format: IEC-60958 Type II (S/PDIF)

Video Output Connector:

- RCA Pin Jack Compatible Signal Format: Composite video signal Output Impedance: 75 ohms

S-VIDEO Output Connector

- 4-pin mini-DIN connector
- Compatible Signal Format: Separate video signal

Audio Performance (CD Playback)

Frequency Response: 20 Hz - 20 kHz ±1.5 dB

- Signal-to-Noise Ratio (S/N): More than 90 dB (20 kHz LPF + A-weighted)
- Dynamic Range: More than 90 dB (20 kHz LPF + A-weighted)

Total Harmonic Distortion: Less than 0.01% (1 kHz, 20 kHz LPF)

- Channel Separation: More than 90 dB (1 kHz, 1 kHz BPF)

26. SITC of 2 core shielded-24 AWG 27x38 high conductivity bare copper conductors, polyvinyl chloride insulation, bare copper spiral shield (92% coverage), in PVC jacket

27. SITC of Professional multi-pair snake cable for audio connection between stage and control room audio mixer (16pair shielded)

28. SITC of Connectors:-

XLR male & female pair

6.35mm TRS

Speakon

29. SITC of Flame-guard-FRLS PVC Cable as speaker cable 2 core, 2.5Sq. mm. 56 strands, each strand of 0.3 mm thickness

30. SITC of 3 /5/ 10/ 15 metres Long Audio Signal Cable with moulded XLR Male /

Female Connectors

VIDEO SYSTEMS

31. SITC of High Brightness – 10,000 ANSI and High Performance 3-chip 0.95" DMD, Full HD (1920 x 1080) Projector

Image	<ul style="list-style-type: none">• Dual Lamp: 10,000 ANSI lumens (11,000 center lumens)• Single Lamp: 5000 ANSI lumens (5500 center lumens)
Contrast	<ul style="list-style-type: none">• 2500-10,000:1 (full on, full off) 650 ANSI (typical)•
Display Technology and Resolution	<ul style="list-style-type: none">• 3-chip 0.95" DLP®• HD (1920 x 1080) resolution
Lamp and Lamp Type	<ul style="list-style-type: none">• Dual 350W PVIP• High Power: 1500 hrs @ 350W• Low Power: 2000 hrs @ 300W• P-VIP Osram
Input and Inputs Signal Compatibility	<ul style="list-style-type: none">• Analog BNC• Dual-Link DVI• Dual SD / HD-SDI• Twin HDMI input card• HDTV formats VGA through to QXGA (2048 x 1536)• Accepts all current HDTV/DTV formats• Multi-standard video decoder• Horizontal and vertical scaling, all inputs
Scan Rates	<ul style="list-style-type: none">• 15 kHz to 120 kHz Horizontal• 23.97 Hz to 150 Hz Vertical
Pixel Clock	<ul style="list-style-type: none">• 165 MHz
Inputs, Controls and Networking	<ul style="list-style-type: none">• RS232 In/Out• RS422 In• Ethernet (10/100)

- USB Device
- GPIO (RS232 9 Pin male connector)
- Built-in backlit LCD keypad
- Remote Control

Optical System

- Dust sealed, 3-Chip DLP® Light Engine
- Motorized Horizontal and Vertical Lens Offset
- Scheimpflug (tilt) Adjustment
- Built-in Light Shutter
- Tool-free Lens Insertion System

Lens Offsets

- +/- 120% Vertical
- +/- 54% Horizontal
- (* ±35%V / ±12%H)
- (** ±100%V / ±40%H)

Enhanced Feature Sets

- LiteLOC™
- Comprehensive Color Adjustment (CCA™)
- Embedded Christie Twist™ Image Warping and Edge-Blending
- Intelligent Lens System (ILS™) for zoom, focus, horizontal and vertical offset
- ILS throw ratio :- 2.6- to 4.1 HD
- Multi-windowing and screen processing (up to a 2x3 array)
- Dynamic Iris
- Menus in five languages
- 99 Channel Memories
- Auto Setup
- Digital Keystone Correction
- Dust sealed engine, filter-free design
- Motorized yellow notch filter (HD & WUXGA models only)
- 3D upgradable

32. SITC of 146" x 260" Viewing Area in 16:9 Format Motorised Screen

(TENSIONED LARGE ADVANTAGE® ELECTROL) projection screen(s), 260" (H) x 146" (W), electrically operated 120 volt (60 Hz) not more than 2.4 amp. with a quick connect male plug-in connector on the motor. Shall have specially designed motor mounted inside the roller, to be three wire with ground, quick reversal type, oiled for life, with automatic thermal overload cut-out, integral gears, capacitor and an electric brake to prevent coasting. To have preset but adjustable limit switches to automatically stop picture surface in the "up" and "down" positions. Junction box shall be internally integrated into the housing making it possible to install the

housing and wire to the building's electrical system during construction. The junction box shall contain a quick connect connector that is mounted in the housing for easy plug-in connection to the motorized fabric and roller assembly. The motorized fabric and roller assembly to be installed in the case at the factory or at a later time at the job site. The fabric roller to be of 4½" diameter (5¾" if 270" diagonal, 275" diagonal, or 298" diagonal) metal. Screen to be designed for left or right-hand motor installation. Screen fabric to be seamless, flame retardant and mildew resistant vinyl with black masking borders standard. Each side of the fabric to have tab guide cable system to maintain even lateral tension and hold surface flat. Custom slat bar with added weight maintains vertical tension on the screen surface. The ends of the slat to be protected by heavy duty plastic caps enclosing a preset adjustable mechanism for screen tensioning. Case to be made of extruded aluminium powder coated white. End caps to be of heavy gauge steel powder coated white. Bottom of case to have a removable access door. Door to be of extruded aluminium powder coated white. Bottom of case to be self-trimming, with a built-in flange around the bottom of the case. To be completed with a three-position control switch and cover plate. Suitable for use in environmental air space in accordance with section 300-22 (c) of the National Electric Code, and sections 2-128, 12-010 (3) and 12-100 of the Canadian Electrical Code, part 1, CSA C22.1. Screen to be listed by Underwriters' Laboratories.

33. SITC of 3500 ANSI Lumens, True HD, single chip DLP Projector

Brightness 3500 Lumens (Typical)

Native Resolution 1080p (1920 x 1080)

Contrast Ratio 3000:1 (Full On/Off)

Lamp Life and Type D4000/3000 Hours (Standard/Boost Mode), 280W

Display Type Single 0.65" DLP® Technology by Texas Instruments

Throw Ratio 1.6 to 1.92:1 (Distance/Width)

Image Size (Diagonal) 23.5" to 282.3" (0.6 to 7.2 m)

Projection Distance 3.3' to 32.8' (1.0 to 10.0 m)

Projection Lens F=2.5, f=23.5-28.2mm

Zoom Ratio 1.2:1 Manual Zoom/Focus

Aspect Ratio 16:9 Native, 4:3 Compatible

Offset 130%

Keystone Correction ±15° Vertical

Color Spectrum 16.7 Million

Horizontal Scan Rate 15, 30 to 90 KHz

Vertical Scan Rate 43 to 85 Hz

Speaker 5W Mono

Remote Control Fully Featured IR Remote with Laser Pointer and Mouse

Projection Method Table Top or Ceiling Mount (Front or Rear)

Uniformity 85%

Computer Compatibility

1080p, WSXGA, UXGA, SXGA+, SXGA, XGA, SVGA, VGA Resized; VESA Standards; PC and Macintosh Compatible

Video Compatibility SDTV(576i), EDTV (480p, 576P), HDTV (720p, 1080i),

NTSC/NTSC 4.43, PAL B/G/H/I/M/N 60, SECAM

I/O Connection Ports HDMI v1.3 (x2), VGA-In, VGA-Out, Composite Video, S-Video, RCA Audio-In, Mini-Jack Audio-In, Mini-Jack Audio-Out, RS-232c, RJ45, 12v Trigger,

USB (Service)

Security Kensington® Lock Port, Security Bar

34. SITC of 52" x 92" Motorised Screen

35. Ceiling Mount Kit with all required cables like HDMI, Mini High Resolution Cable, Video and Power Cable with Face plates , PVC Conduits/ Casings and connectors

36. SITC of 46" Full HD 1080 picture quality with Edge LED backlight TV

Picture

Display Resolution Full HD 1080 (1920 x 1080)

Video Processing X-Reality picture engine

Backlight Module Edge LED

Live Colour™ Yes

Deep Color Yes

Intelligent Image Enhancer Yes

Intelligent MPEG Noise Reduction Yes

Advanced Contrast Enhancer (ACE) Yes

24P True Cinema™ Yes

Photo TV HD Yes

Screen Format TV Full/ Normal/ Wide Zoom/ Zoom/ Caption/ 14:9, PC:
Full 1/ Full 2/ Normal

Picture Mode Vivid/ Standard/ Custom/ Cinema/ Game-Standard/ Game-Original/

Graphics/ Sports/ Animation/ Photo-Vivid/ Photo-Standard/ Photo-Original/ Photo-Custom

CineMotion / Film Mode / Cinema Drive Yes

3D Comb Filter Yes

Audio

Sound Mode Dynamic / Standard / Clear Voice

Surround Mode Cinema / Music / Sports / game

Sound Enhancer Yes

S-Master Yes

S-Force S-Force Front Surround 3D

Dolby® Dolby® Digital / Dolby® Digital Plus / Dolby® Pulse

Simulated Stereo Yes

Stereo System NICAM, A2

Audio Output Power 20W (10W x 2)

Terminals

HDMI™ / Audio IN 4 (1 Side / 3 Rear)

USB 2.0 2 (side 2.0 2 (Side)

Ethernet Connection 1 (Rear)

Composite Video Input(s) 2 (Rear / 1 Hybrid)

Component Video 1 (Rear / Hybrid)
(Y/Pb/Pr) Input(s)

RF Connection Input(s) 1 (Rear)

HD15 PC Input / Audio 1 (Side)

Digital Audio Output(s) 1 (Rear)

Audio Out 1 (Side)

Headphone Out 1 (Side)

Other Features

UBS Play Yes (Video, Music, Photo)

Quick Start & Viewing Yes

Picture Frame Mode Yes

Scene Select Photo / Music / Cinema / Game / Graphics / Sports /

	Animation
PAP (Picture And Picture)	PAP (Vairable)
PIP (Picture In Picture)	Yes

Network Features

Wi-Fi Connectivity	Wireless LAN Ready (requires Wi-Fi adaptor UWA-BR100)
Wi-Fi Direct	Network Update (requires Wi-Fi adaptor UWA-BR100)

ECO Features

Backlight Off Mode	Yes
Presence Sensor	Yes
Light Sensor	Yes

37. SITC of 40" Full HD 1080 picture quality with Edge LED TV

Picture

Display Resolution	Full HD 1080 (1920 x 1080)
Video Processing	X-Reality picture engine
Backlight Module	Edge LED
Live Colour™	Yes
Deep Color	Yes
Intelligent Image Enhancer	Yes
Intelligent MPEG Noise Reduction	Yes
Advanced Contrast Enhancer (ACE)	Yes
24P True Cinema™	Yes
Photo TV HD	Yes
Screen Format	Full/ Normal/ Wide Zoom/ Zoom/ Caption/ 14:9, PC: Full 1/ Full 2/ Normal
Picture Mode	Vivid/ Standard/ Custom/ Cinema/ Game-Standard/ Game-Original/ Graphics/ Sports/ Animation/ Photo-Vivid/ Photo-Standard/ Photo-Original/ Photo-Custom
CineMotion/Film Mode / Cinema Drive	Yes
3D Comb Filter	Yes

Audio

Sound Mode	Dynamic / Standard / Clear Voice
Surround Mode	Cinema / Music / Sports / Game
Sound Enhancer	Yes
S-Master	Yes
S-Force	S-Force Front Surround 3D
Dolby®	Dolby® Digital / Dolby® Digital Plus / Dolby® Pulse
Simulated Stereo	Yes
Stereo System	NICAM, A2
Audio Output Power	20W (10W x 2)

Terminals

HDMI™ / Audio In	4 (1 Side / 3 Rear)
USB	2.0 2 (Side)
Ethernet Connection	1 (Rear)
Composite Video Input(s)	2 (Rear / 1 Hybrid)
Component Video (Y/Pb/Pr) Input(s)	1 (Rear / Hybrid)
RF Connection Input(s)	1 (Rear)
HD15 PC Input / Audio	1 (Side)
Digital Audio Output(s)	1 (Rear)
Audio Out	1 (Side)
Headphone Out	1 (Side)

Other Features

USB Play	Yes (Video, Music, Photo)
Picture Frame Mode	Yes
Scene Select Animation	Photo/ Music/ Cinema/ Game/ Graphics/ Sports/
PAP (Picture And Picture)	PAP (Variable)
PIP (Picture In Picture)	Yes

Network Features

Wi-Fi Connectivity	Wireless LAN Ready (requires Wi-Fi adaptor UWA- BR100)
Wi-Fi Direct	Network Update (requires Wi-Fi adaptor UWA-BR100)

ECO Features

Backlight Off Mode	Yes
Presence Sensor	Yes
Light Sensor	Yes

38. SITC of Professional Blu-ray & 500GB HDD

Recording Function

HDD storage capacity 500GB

H.264 (MPEG-4 AVC),

Video recording system MPEG-2 TS, MPEG-2 PS, JPEG (Still)

Audio recording system Dolby Digital, Linear PCM MOV*1, AVCHD, HDV, DV,

Importable data format (to HDD) JPEG, BDAV, BDMV, DVD-Video/VR, Everio backup disc

Recordable Media

Blu-ray Disc BD-R (SL/DL), BD-RE (SL/DL)*2

DVD DVD-R (SL/DL), DVD-RW

SD Card (Still) SDHC, SD

Playable Media

Blu-ray Disc BD-Video,

BD-R (SL/DL), BD-RE (SL/DL)

DVD-Video, DVD-R (SL/DL), DVD DVD-RW, DVD-RAM, DVD+R (SL/DL), +RW

CD CD, CD-R, CD-RW

SD Card (Video*3/Still) SDHC, SD

Recordable/Playable Disc Format

Recordable disc format

BDAV BD-R (SL/DL), BD-RE (SL/DL)*2

BDMV (HDMV) BD-R (SL/DL), BD-RE (SL/DL)*2

DVD-Video DVD-R (SL/DL)/-RW

DVD-VR mode DVD-R (SL/DL)/-RW

JPEG BD-RE, SDHC, SD

Playable disc Format

BDAV BD-R (SL/DL), BD-RE (SL/DL)*2

BDMV (HDMV) BD-R (SL/DL), BD-RE (SL/DL)*2

DVD-Video DVD-R (SL/DL)/-RW, +RW

DVD-VR (CPRM enabled) DVD-R (SL/DL)/-RW, DVD-RAM

AVCHD DVD-R (SL/DL)/-RW, DVD-RAM, SDHC, SD

JPEG BD-RE (SL/DL), SDHC, SD, Everio backup disc (DVD-R/-RW)

CD-DA Yes

Everio backup disc Yes

Recording Mode

MPEG-2 TS DR

H.264 (MPEG-4 AVC) AF, AN, AL, AE

MPEG-2 PS XP, SP, LP, EP, FR

Input and Output

Video input/output 1 Vp-p, 75 ohms (BNC)

Audio input/output 2Vrms (pin jack)

S-video input/output Y: 1.0 Vp-p, 75 ohms, C: 0.286 Vp-p, 75 ohms

DV input 4-pin for DV, HDV IN

Remote input 3.5 mm diameter jack

Serial command RS-232C (D-sub 9-pin)

Component video output Y: 1.0 Vp-p, 75 ohms CB/CR, PB/PR: 0.7 Vp-p, 75 Ω

HDMI output 19-pin type A (Deep Color, x.v.Color, Ver.1.3a)

USB terminal USB2.0

SD memory card SDHC, SD

39. SITC of Five Conductor MHR - Mini High Resolution Cable

Five 26 AWG, 75 ohm coaxial conductors in a single jacket. This mini high resolution cable includes five 26 AWG, 75 ohm coaxial color-coded conductors.

Each conductor is individually double-shielded with foil and tinned copper serve to reduce interference.

High resolution video signal distribution — Lighter, smaller in diameter, and more convenient to install than standard coaxial cable, BNC-5 cable offers excellent performance for high resolution video signal distribution. The cable is sweep tested

from .3 Mhz to 1300 Mhz.

40. SITC of Face plates for 12 XLR x 2 nos, HDMI x 4nos, 1 RCA Video x 2nos, 1 XLR x 2

PROFESSIONAL GRADE FULL HD VIDEO COLOUR CAMERA SYSTEM:

41. SITC of Professional Full HD Resolution Colour Video Camera

System

Video signal	1080/59.94i, 1080/50i 720/59.94P, 720/50P (switched with the BOTTOM switch)
Synchronization	Internal/external synchronization, automatically switched
Image device	1/3 type (6 mm), CMOS pickup element
Total picture elements	Approx.2,250,000 pixels
Effective picture elements:	Approx.2,160,000 pixels
Lens	18x (optical), 4x (digital) f = 4.6 to 82.8 mm, F1.6 to F2.2 f = 36.2 to 651.0 mm (equivalent to the focal length of a 35-mm camera)
Minimum object distance	100 mm (4 inches) (WIDE end: LIMIT OFF) / 500 mm (19 ¾ inches) (WIDE end: LIMIT OFF) / 1500 mm (59 1/8 inches) (TELE end)
Minimum illumination	6 lux (F1.6) with 50 IRE (WIDE end)
Shutter speed	1/59.94 (1/50) to 1/10,000 sec.
Video S/N	50 dB (component Y signal output)

Pan/tilt action Horizontal:	±175 degrees
Maximum panning speed:	60 degrees/sec.
Minimum panning speed:	0.25 degrees/sec.
Vertical:	+90 degrees, -30 degrees
Maximum tilting speed:	60 degrees/ sec.
Minimum tilting speed:	0.25 degrees/sec.

Input/output connectors

Video output	RGB/COMPONENT (D-sub 15-pin)
RGB:	0.7 Vp-p (no sync, at 75-ohm termination) 1 Vp-p (±0.3 V, tri-level sync, at 75-ohm termination)

Component :

Y: 1 Vp-p (± 0.3 V, tri-level sync, at 75-ohm termination)

Pb/Pr: ± 350 mVp-p, 75-ohm terminated

HD/VD Sync: 1 Vp-p, 75-ohm terminated

Tri-level Sync: ± 300 mVp-p, 75-ohm terminated VIDEO (BNC type)

Composite: 1 Vp-p (sync negative, at 75-ohm termination) S VIDEO (mini DIN 4-pin)

S video output:

Y: 1 Vp-p (sync negative, at 75-ohm termination)

C: Same as chroma level of composite signal (at 75-ohm termination)

External sync input EXT SYNC IN: BNC type Control input/output

VISCA RS-232C IN: Mini DIN 8-pin type

VISCA RS-232C OUT: Mini DIN 8-pin type

VISCA RS-422: 9-pin type Control signal format 9600 bps/38400 bps

Data: 8 bit

Stop bit: 1

42. SITC of SITC of HD-SDI Output card

SDI OUTPUT connectors (BNC type)

The Card allows output of an HD-SDI signal conforming to SMPTE292M serial digital interface standards.

43. SITC of Remote control unit

The remote control unit to be equipped with ergonomic joystick and feature rich control panel for controlling all camera settings including the PTZ function of the colour video camera.

Easy Operation of Versatile Camera Adjustments

The VISCA RS-232C/RS-422 Communication Interfaces Allow High-speed, Long-distance Communication

A Tally Lamp Input/Contact Output Terminal Allows Connection of a Video Switcher

Preset Feature to Save Camera Settings

44. SITC of Professional Grade Compact Audio Video Mixing Switcher

General

Supported format 1080i/50, 1080i/59.94, 720p/50, 720p/59.94, 480i/59.94, 576i/50

Input / Output

Video Input

SDI: BNC (x4), SMPTE-292M, 299M, 259M-C, 272M-A
HDMI HDMI (Type A) (x3)
DVI-I DVI (x1) (DVI-IN)
Composite BNC (x3)
Reference BNC (x2), loop through 75 Ω , analog black burst or tri-
Level sync signal

Video Output

SDI BNC (x4), SMPTE-292M, 299M, 259M-C, 272M-A
DVI-D DVI (x2) (AUX, MULTI VIEWER)
Composite BNC (x1)
Reference BNC (x1), 75 Ω , black burst signal

Audio Input

Analog input 1 and 2 XLR/TRS combo (x2) (MIC/LINE 1 and 2),
male
Analog input 3 to 6 TRS phone (x4) (MIC/LINE 3 to 6)
Analog input 7 and 8 Phono jack (x2) (LINE 7 and 8)

Audio Output

Analog output 1 and 2 XLR (x2) (PGM OUT L and R), female
Analog output TRS phone (x4) (AUX 1/AUX 2/MON L/MON R)
Analog output Phono jack (x2) (MIX L/MIX R)
Headphones output Standard stereo phone (x1)

Other Interfaces

USB Type A (x1)
Remote D-sub 9-pin (x1), male, RS-232C
TALL /GPI D-sub 15-pin (x1), male

AUDIO-VIDEO DISTRIBUTION SYSTEMS

45. SITC of Presentation Digital Scaler and Digital Switcher with balanced stereo

audio

Features

HQV® Video Processing
Fade-Thru-Black (FTB™) Switching
K-IIT XL™ Picture-in-Picture Image Insertion Technology

Projector Anywhere™ Technology

Video Inputs

Scaled Video Outputs - 1 HDMI & 2 15-pin HD.

HDTV Compatible.

HDCP Compliant - The HDCP (High Definition Content Protection) license agreement allows copy-protected data on the HDMI input to pass only to the HDMI output.

Multi-Standard - Auto, NTSC (3.58/4.43), PAL (M/N/60) & SECAM.

HDTV Compatible Component Input.

HDTV Output Resolutions - 720p, 1080i, and 1080p.

Computer Graphics Output Resolutions - 32 plus 4 user-definable (custom) output resolutions with selectable refresh rates.

Multiple Aspect Ratio Selections - 4x3 or 16x9, anamorphic, letter box, and user definable settings.

Companion AFV (Audio-Follow-Video) for Every Analog Video Input - Supports embedded audio on the 2 HDMI inputs and outputs.

Built-In Audio Amplifier - 6W RMS per channel audio amplifier with speaker output connectors.

Audio Inputs - 6 balanced or S/PDIF audio (each selectable) on terminal blocks, one for each of the 2 universal video and 4 computer graphics video inputs. Individual level adjustment.

Audio Outputs - Speaker, S/PDIF (RCA) and balanced stereo audio (terminal blocks). Embeds & de-embeds HDMI audio. Master volume control.

Audio Delay - Adjustable from 0 to 340msec.

Built-in Time Base Corrector - Stabilizes unstable video sources.

Built-in ProcAmp - Color, hue, sharpness, contrast, and brightness are set individually for each input.

Advanced Noise Reduction Features - Designed to improve video quality by reducing artifacts such as block, chroma and mosquito noise.

Text Overlay.

Front Panel Lockout.

Front Panel Freeze Frame.

Video Blanking - Blue or black screen selectable.

Zoom - 100% to 400%.

Flexible Control Options - Front panel, IR remote (with on-screen menus) & RS-232.

INPUTS: 2 x universal Y/CV, Pb/C, Pr (composite, s-Video and component) 1 Vpp/75Ω on BNC connectors;

4 x PC (computer graphics) on 15-pin HD connectors (VGA through UXGA);

2 x HDMI connectors;

1 x USB connector;

For each universal and PC input there is a corresponding balanced stereo audio or digital S/PDIF

Input on 5 pin terminal blocks.

OUTPUTS: 1 HDMI connector;

2 x PC (computer graphics) on 15-pin HD connectors;

1 balanced stereo audio output on a 5-pin terminal block;

1 digital S/PDIF output on an RCA connector;

46. SITC of 1:16 HDMI Distribution Amplifier

INPUT: HDMI Connector.

OUTPUT: 8/16 HDMI connectors.

BANDWIDTH: Supports up to 2.25Gbps per graphic channel.

COMPLIANCE WITH HDMI STANDARDS Supports HDMI 1.3a and HDCP

CONTROLS: SELECT and READ buttons for selecting and storing EDID information.

INDICATOR LEDs: OUTPUT STATUS 1 to 8/16.

HDMI Support - HDMI (V.1.4 with Deep Color, x.v.Color™, Lip Sync, CEC).

3D Pass- Through

47. SITC of HDMI over TP Transmitter

Transmitter over twisted pair, Max. Data Rate - 1.65Gbps, HDTV Compatible. HDCP Compliant, HDMI Support - HDMI (V.1.4 with Deep Color, x.v.Color™, HDMI Uncompressed Audio Channels, Output - 1 DGK at twisted pair RJ-45 connector,

48. SITC of 19" Rack adaptor to mount the above mentioned Transmitter

49. SITC of HDMI over TP Receiver

Max. Data Rate - 1.65Gbps.

HDTV Compatible.

HDCP Compliant.

Signal Integration - For converting TMDS as well as control and Communication to signals that run over twisted pair cables. HDMI Support - HDMI (V.1.4 with 3D, Deep Color, x.v.Color™, HDMI Uncompressed Audio Channels, Dolby TrueHD, DTS-HD).

3D Pass-Through.

EDID PassThru - Passes EDID signals between the source and display.

Status LED - Lights red when receiving power only, orange when output and power are attached, and yellow when both an active input and output are attached.

INPUTS: 1 RJ-45 connector.

OUTPUTS: 1 HDMI connector

50. SITC of 4x1 HDMI Switcher

HDMI Support - HDMI (V.1.4 with Deep Color, x.v.Color™, Lip Sync, HDMI Uncompressed Audio Channels, Dolby

TrueHD, DTS-HD, CEC).

3D Pass-Through.

Intelligent EDID Processing™ - Intelligent EDID handling & processing algorithm ensures Plug and Play operation for HDMI systems.

Dual Mode - PC and DVD Modes selectable by input.

Flexible Control Options - Front panel, RS-232 (K-Router™ Windows®-based software is included), Ethernet & IR remote (included).

Video Disconnect.

Front Panel Lockout.

Equalization & re-Klocking™ Technology - Rebuilds the digital signal to travel longer distances.

INPUT: 4 HDMI connectors.

OUTPUT: 1 HDMI connector.

BANDWIDTH: Supports up to 2.25Gbps bandwidth per graphic channel.

COMPLIANCE WITH HDMI STANDARD: Supports HDMI and HDCP.

RESOLUTION: Up to UXGA; 1080p, deep color.

51. SITC of HDMI to Video Converter

Support HDMI resolution max up to 1080P

Supports Analog composite video output up to NTSC/480i or PAL/576i

Supports uncompressed R/L audio output

Could convert complete HDMI input into composite video signal and R/L audio output

Item: HDMI to AV Converter

52. SITC of 3G HD-SDI to HDMI Format Converter

Multi-Standard Operation - SDI (SMPTE 259M and SMPTE 344M), HBSDI (SMPTE 292M) and 3G HD-SDI (SMPTE 424M).

Inputs - 3G HD-SDI on a BNC connector.

Looping Input with Reclocking.

Outputs - 1 HDMI.

HDTV Compatible.

Audio Group De-embedded Selection.

Active Input & Output LED Indicators.

INPUT: 1 SDI, HD-SDI, 3G HD-SDI on a BNC connector.

OUTPUTS: 1 SDI, HD-SDI, 3G HD-SDI loop on a BNC connector, 1 HDMI connector.

MAX. DATA RATE: Up to 3Gbps.

STANDARD COMPLIANCE: HDMI.

INDICATOR LEDES: SD/HD, OUT, ON.

53. SITC of 9" Rack adaptor to mount the above mentioned HDMI converter

54. SITC of Four Pair STP (Shielded Twisted Pair) Data Cable-24 AWG

4 non-shielded (F/UTP) twisted pairs of 24 AWG solid copper conductors are cabled together and shielded with a polyester-aluminium tape and outer jacket.

55. SITC of HDMI Patch Cables of 0.5 metres

56. SITC of HDMI Patch Cables of 1.5 metres

57. SITC of HDMI Patch Cables of 10 metres

58. SITC of HDMI Patch Cables of 20 metres

59. SITC of HDMI Patch Cables of 30 metres

CONTROL SYSTEMS

60. SITC of 8.4" Modero ViewPoint® Touch Panel with power supply adaptor and

kick stand

DESIGN

- Touch panel must have attractive, user-centered industrial design. Recognition by the industry and industry design awards are highly desirable.
- Touch panel must offer flexibility in the choice of configuration modes that should include handheld/free-roaming, tabletop (with a kick-stand or a docking station), or wall mount. Panels restricted to a particular configuration mode shall not be accepted.
- Touch panel must offer multiple interface options to include finger, stylus, on-screen keyboard, hardware cursor and external hard buttons, as well as external hardware keyboard and mouse. Panels restricted to one or two interface options shall not be accepted.
- When used as a tabletop, touch panel must be equipped with a smooth tilt mechanism for one-hand infinite tilt adjustment. Fixed position, ratchet-type, or discrete step tilt mechanisms and those that require both hands for tilt operation shall not be accepted.
- When used on the wall, touch panel should be equipped with a lock mechanism that would prevent unauthorized removal of the panel from the wall, whether the panel is powered or not. Panels without such security features shall not be accepted.
- Touch panel must support Ethernet connectivity available wirelessly. Panels without Ethernet connectivity shall not be accepted.
- Touch panel must have integrated audio/video capabilities with built-in microphone, stereo speakers, and support for onboard WAV and MP3 (audio/video) file playback. Audio features must be available wirelessly. Panels without such comprehensive multimedia capabilities shall not be accepted.
- Programming of Touch panel should be available through a direct USB link to the programming PC as well as a wireless network connection. Panels without such programming options shall not be accepted.
- Touch panel must be equipped with external buttons, programmable globally or locally (content-specific) to implement one-touch macro operations, navigation, and direct device control. Panels without such external buttons shall not be accepted.
- Touch panel must be equipped with programmable LED's to be used as status or event indicators. Panel not equipped with such indicators shall not be accepted.
- Touch panel used in tabletop or surface mount configurations must be designed for use with a USB computer mouse and keyboard. Panels without such functional extensions shall not be accepted.

DISPLAY

- 8.4" display must feature color-active matrix and support 800x600 or higher resolution. Color passive displays and those with lower resolution shall not be accepted.
- Active screen area: 6.71" x 5.03" (17.04cm x 12.78cm)
- Viewing angle must be 120° or better horizontally and 80° or better vertically. Narrower display viewing angles shall not be accepted.
- Display should feature 180 cd/m² brightness or better. Panels with lower brightness shall not be accepted.
- Touch screen overlay must feature an anti-glare technology. High-gloss touch overlays shall not be accepted.
- Display color depth must be 18-bit or better. Lower color depth shall not be accepted.
- Alpha channel blending must be 8-bit or better. Lower transparency/opacity capabilities shall not be accepted

GRAPHICS/APPLICATIONS

- Touch panel graphics engine must support 18-bit color depth and 8-bit transparency. Transparency/opacity levels must be available to any graphics element or the overall button or a popup page. Panels with less graphic capabilities shall not be accepted.
- Touch panel graphics engine must support animated images/multi-state buttons with 256 states or more. Less powerful animation tools shall not be accepted.
- Touch panel graphics engine must support dynamic imaging where the panel can obtain images from any external HTTP or FTP location continuously at preset time intervals. Panels without dynamic imaging capabilities shall not be accepted.
- Touch panel must support full computer control for all major computer platforms including Microsoft, Macintosh, and Linux. Computer control capabilities must be implemented within the firmware/software with no additional hardware required and must provide simultaneous control over multiple computers resident on the control network. Panels without computer control capabilities as described above shall not be accepted.
- Touch panel must offer remote panel control options either directly through a virtual networking session with a network-connected computer, or through a Web browser. Both options should feature data encryption and password protection. Panels without such remote control capabilities shall not be accepted.
- Touch panel graphics engine must support inactivity mode so that the panel could stay productive and useful even during the typically idle time. Panels that do not allow for useful application of inactivity time shall not be accepted.
- Panel GUI files must be password-protected to preserve the client's intellectual property (IP) and prevent unauthorized reuse of the design by other parties. Panels that do not provide such adequate IP protection shall not be accepted.

COMMUNICATION

- Touch panel must feature wireless Ethernet connectivity. Panels without wireless Ethernet support shall not be accepted.
- Ethernet must support dynamic and static IP addressing as well as ISS security. Ethernet implementations that do not support both dynamic and static IP addressing or lack ISS security features shall not be accepted.
- Touch panels should connect over the existing Ethernet LANs to any number of control systems via connected master controller through a single connection managed at the panel. Touch panels

that must connect to a dedicated lower-speed proprietary control system network or manage multiple connections at the panel shall not be accepted

VIDEO/AUDIO

- Touch panel must support video playback on board (e.g., MP3) when wireless. Panels without such video support shall not be accepted.
- Touch panel must support video in a variable size user-defined windows (automatically scaled without stretching, cropping or otherwise modifying the image) or full screen. Panels that do not support such scaling options or true scaling shall not be accepted.
- Touch panel still must be able to support web camera video applications through continuous frame capturing or a similar method that is a software implementation with no additional hardware required. Such digital video framing should be available on the panel in wireless configuration. Panels that do not have support for digital video framing or require additional hardware for such implementations, or do not have such functionality available wirelessly shall not be accepted.

VOICE

- Built in Speaker and Microphone with enhanced G.711 telephone voice quality sound of at least 70dB SPL @ 1 meter
- Support for two-way communication between any two intercom-enabled panels
- Support for one-way pages that can be broadcast simultaneously to all intercom enabled panels
- Support one-way monitoring with Listen Only mode for room monitoring.
- Support for Privacy Mode to allow the users to disable all intercom capabilities temporarily

WIRELESS

- Touch panel, regardless of the configuration mode - handheld, tabletop or wall mount - must be designed for wireless operation through a standard wireless interface card (e.g., 802.11g wireless interface card). Panels without wireless options or those that require additional or proprietary equipment to enable wireless operation shall not be accepted.
- 2-way RF wireless connectivity must be provided via a standard wireless communication protocol (e.g., 802.11g). Indoors 802.11g signals can travel as far as 150 meters (492 feet). Outdoors 802.11g range is 500 meters (1640 feet). Panels that require use of proprietary wireless cards or modules or technology, or deploy technologies that provide lesser than the above stated operating distances shall not be accepted.
- Touch panel must use Lithium Ion batteries to ensure long battery life and light weight. Earlier battery technologies such as Ni-based shall not be accepted.
- Battery life on 8.4" wireless panel in normal operation must be eight (8) hours or longer with two batteries. Panels that do not provide eight hours of normal operation shall not be accepted.
- Panel must have the option to operate using one or two batteries. Panels that do not provide the option of using one or two batteries shall not be accepted.
- Charging of the batteries must be available through a docking station (tabletop or wall mount) as well as a direct power connection to the panel. Panels without such flexible charging options shall not be accepted.
- Stand-alone battery chargers/docking stations must charge the entire battery set required by the panel in less time than the set can be depleted in normal operation to provide for an uninterrupted charge/usage cycle. Such chargers/docking stations should also accommodate additional/spare set of batteries to be charged when the panel batteries have been charged. Panels that do not provide for an uninterrupted charge/usage cycle with two battery sets or the option of charging additional/spare batteries shall not be accepted.

- Touch panel must be able to communicate with the batteries and provide accurate battery status at any time on the panel's screen. Panels that utilize battery systems that do not provide on-screen status shall not be accepted.

MEMORY

- Touch panel must have 128 MB of SDRAM or more in standard configuration. Panels without such memory capabilities shall not be accepted.
- Touch panel must have 128 MB of Compact Flash or more in standard configuration. Panels without such memory capabilities shall not be accepted.

DISPLAY:

- Aspect ratio: 4 x 3
- Brightness (luminance): 180 cd/m²
- Channel transparency: 8-bit Alpha blending
- Contrast ratio: 350:1
- Display colors: 256K colors (18-bit color depth)
- Dot/pixel pitch: 0.21 mm
- Panel type: TFT Color Active-Matrix
- Screen resolution: 800 x 600 pixels (HV) @ 60 Hz frame frequency
- Active screen area: 6.71" x 5.03" (17.04cm x 12.78cm)
- Horizontal: + 60° (left and right from center)
- Vertical: + 40° (up and down from center)

CERTIFICATIONS:

- FCC, CE, and EN 60950

61. SITC of NetLinx® Integrated Controller with power supply adaptor

DESIGN

- Ideal for large single room requirements to meet the specific control and automation features which include the integration of VCR and DVD players, projectors, lighting, thermostats and other electronic equipment.
- Incorporates the proven functionality of the AMX ME260 NetLinx Master
- Controller must be compatible with all AMX Axxess and NetLinx touch panels and control products. Controllers which are not compatible shall not be accepted.
- Controller must utilize a real-time, event driven operating system. Controllers not using a real-time, event driven operating system shall not be accepted.
- Controller must be based on the AMCC PowerPC processor operating at 404 MIPS or faster. Controllers operating slower than 404 MIPS shall not be accepted.
- Controller must include at least seven (7) communications ports capable of RS-232, RS422, and RS485 communications. Controllers with less than seven (7) communication ports or not capable of supporting RS232, RS422, and RS485 shall not be accepted
- Controller communication ports must support software handshaking (XON/XOFF) and hardware handshaking (CTS/RTS). Controller communication ports that do not support software and hardware handshaking shall not be accepted.
- Controller communication ports must support baud rates of 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200. Controller communication ports that do not support the baud rates above shall not be accepted.

- Controller must include at least eight (8) IR control ports. Controllers with less than eight (8) IR control ports shall not be accepted.
- Controller IR control ports must support carrier frequencies up to 1.142 MHz. Controller IR control ports that do not support carrier frequencies up to 1.142 MHz shall not be accepted.
- Controller IR control ports must support “wired-IR” control signals without the need for external devices or accessories. Controllers that do not support “wired-IR” or require external devices or accessories to generate “wired-IR” signals shall not be accepted.
- Controller must include at least eight (8) isolated and independent relay ports that provide contact closure output. Controllers with less than eight (8) relay ports or not isolated and independent shall not be accepted.
- Controller must include at least eight (8) I/O Ports that may be configured input or output functionality independently. Output function must provide for an open-collector output to a common ground. Input function must sense contact closure or 0-28 VDC voltage sensing. Controllers with less than eight (8) I/O ports or do not meet the other requirements above shall not be accepted.
- Controller must be capable of intelligent power control for IR controlled devices by allowing an I/O Port, with connected power or video sync sensing accessory, to provide deterministic status regarding the power state of a device. Further, a simple ON or OFF command to the controller shall initiate internal controller logic to generate the necessary IR control signal to power the device as initiated by the ON or OFF command. Controllers without intelligent power control shall not be accepted.
- Controller must include at least 128 MB of onboard Compact Flash memory. Controllers with less than 128 MB of onboard Compact Flash memory shall not be accepted.
- Controller Compact Flash memory must be expandable to at least 1 GB. Controllers without memory expansion capability or cannot be expanded to at least 1GB shall not be accepted.
- Controller must include at least 1 MB of non-volatile battery backed memory for persistent storage of dynamic information. Controllers less than 1 MB of non-volatile battery backed memory shall not be accepted.
- Controller must include a user replaceable battery for the battery backed non-volatile memory. Controllers that do not have a user replaceable battery shall not be accepted.
- Controller front panel must display status/activity of each port via LED indicators as a diagnostic aid. Controllers without front panel indicators shall not be accepted.
- Controller must have integrated Ethernet connectivity. Panels with add-on Ethernet cards available separately shall be considered Ethernet-enabled and shall not be accepted.
- Controller Ethernet must support both 10 and 100 Mbps data rates at both half and full duplex. Controllers that only support 10 Mbps data rate or only half duplex shall not be accepted.
- Controller Ethernet must be capable of auto-negotiation to detect the optimal communication format (10/100 and half/full). Controllers without auto-negotiation capability shall not be accepted.
- Controller must support optional manual configuration of the Ethernet communication format to force the unit into 10 or 100 Mbps and half or full duplex. Controllers without the ability to manually force the Ethernet communication format shall not be accepted.
- Controller must be a Network friendly controller and support and should work with any industry standard firewall implementation. Controllers using proprietary firewall implementations shall not be accepted.
- Controller must support the following protocols over its Ethernet network port:
 - TCP/IP Communications
 - DHCP and DNS
 - ICSP
 - ICMP
 - Telnet
 - HTTP
 - FTP

Controllers without support for the above protocols shall not be accepted.

- Controller must support diagnostics, administration, and configuration through its Ethernet port. Controllers that do not support diagnostics, administration and configuration via its Ethernet port shall not be accepted.
- Controller must be able to support an independent control area network that communicates at over 600 kbps and includes power and audio distribution up to 1000 feet over standard Category 5 cable. Controllers without the described independent control area network shall not be accepted.
- Controller must support a 2nd independent Control Area Network that communicates at over 20 kbps and includes power distribution up to 3000 feet. Controllers without the described independent control area network shall not be accepted.
- Controller must support system expansion (adding control ports) via optional card frame that supports any mix of control cards for IR, RS232/422/485, Relay, I/O, Volume, and others. Controllers that do not support expansion shall not be accepted.
- Controller must provide an RS232 port (Program Port) that provides an alternate means for diagnostics, administration, and configuration. Controllers without a “Program Port” with the functionality listed above shall not be accepted.

PROGRAMMING

Compatible with all AMX NetLinx software products including:

- Visual Architect
- Café Duet
- NetLinx Studio
- Design Express/ PRO
- Design Express / Home Theater
- TP Design
- Integration! Solutions Applications

TECHNICAL SPECIFICATIONS

- Power requirements: 900 mA @ 12 VDC
- Standard Memory: 128 MB
- Dimensions: 3.47” x 17” x 3.47” (8.81 cm x 43.18 cm x 8.81 cm)
- Weight: 4.55 lbs. (2.06 kg)
- Enclosure: Metal with black matte finish
- 19” Rack mount or shelf mount
- Operate at temperatures between 0° C and 50°
- Relative Humidity of 85% or less.
- FCC Class B and CE Certified

62. SITC of NXA-WAP250G 802.11b/g Wireless Access Point

Maximum Channels

- FCC/IC: 1-11
- ETSI: 1-13
- MKK: 1-13

Maximum Clients 32 per VAP interface

Data Rate

- 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps per channel
- 802.11b: 1, 2, 5.5, 11 Mbps per channel

Modulation Type

- 802.11g: CCK, BPSK, QPSK, OFDM
- 802.11b: CCK, BPSK, QPSK

Network Configuration Infrastructure

Operating Frequency

- 2.4 ~ 2.4835 GHz (US, Canada, ETSI)
- 2.4 ~ 2.483 GHz (Japan)

Wireless Output Power

- 802.11b: 18 dBm (typical)
- 802.11g: 17 dBm @ 6 Mbps, 14dBm @ 54 Mbps

Wireless Receive Sensitivity

- 802.11b: -90 dBm @ 1 Mbps, -84 dBm @ 11 Mbps
- 802.11g: -86 dBm @ 6 Mbps, -68 dBm @ 54 Mbps

LED Indicators

- POWER (Power),
- LAN (Ethernet Link/Activity),
- WLAN (Wireless Link/Activity)

Network Management Web-browser)

Compliances

- FCC Part 15B Class B
- EN 55022 Class B
- EN 55024
- EN61000-3-2
- EN61000-3-3

Standards

- IEEE 802.3-2005 10BASE-T, 100BASE-TX

- IEEE 802.11b, g
- Wi-Fi 11b/g, WPA, WPA2

Radio Signal Certification

- FCC Part 15C 15.247, 15.207 (2.4 GHz)
- EN 300-328
- EN 301 489-1
- EN 301 489-17
- ARIB STD-T66
- IC RSS-210

Safety

- EN 60950-1
- IEC 60950-1 (CB)

63. SITC of NetLinx IR Emitter Cable

The CC-NIRC is an IR emitter cable used with NetLinx controllers to control your equipment either from IR emitters or a hand-held remote control. Utilizes a 2-pin,

5 mm Phoenix connector on one end and a single LED emitter (flasher) on the other end

64. SITC of Universal Power/Motor Controller

Power Self-powered when used with 110/220 VAC

Power input (for control board)

120/240V ~, 50-60 Hz, 0.05/0.025A -or- 12 VDC, 0.2A max

Power output per relay

- 20A @ 120/240V ~, 50-60 Hz (RESISTIVE LOAD)
- 6A @ 277V ~, 50-60 Hz (FLUORESCENT BALLAST)
- 1 HP @ 120V ~, 50-60 Hz (INDUCTIVE LOAD)
- 2 HP @ 240V ~, 50-60 Hz (INDUCTIVE LOAD)

Total Current through both relays cannot exceed 20 amp.

Approvals UL / C-UL / CE

Includes • 1-, 2-, and 3-button logic modes

- Local test switches with status LEDs
- 120, 240, and 277 VAC control capability

Inputs • 4 closure inputs, operation defined by mode.

- One IR remote sensor input.
- Motor Control mode alternates between the timed operation of the two power relays.
- Power Control mode allows independent control of both power relays.

Control Ports Two 2400 W power relays. Total combined current through both relays is 20 Amps.

Input Power Switch (S1) • Set this switch according to the high voltage wiring that will be connected to terminals 5 and 6 on P1.

- Set switch S1 to the line input voltage value used before applying power to the UPC20+.

High Voltage Terminal Block (P1)

High voltage input and output wiring for motor or power control.

Low voltage and Control

Terminal Block (P2)

Contact closure, open-collector or CMOS logic level remote control wiring. Inputs 5 - 8 are referenced to the common connection at pin 4.

Jumper JP1 Sets control mode of the unit to contact closure or remote sensor serial data.

Test Switches (PB1 and PB2)

Provides local operation of relays K1 and K2 for testing power circuits or motors connected to the relay terminals. An LED indicates relay power applied.

Motor Time Delay Potentiometer (R8)

Only used in motor control modes. User adjusted for setting relay release time between 0 and 90 seconds.

DIP Switch (S2) Provides selection of control mode options. See the Motor Control Mode DIP Switch S2 Positions table on page 1 and the Control Input Wiring to Connector P2 Terminals table on page 2 for control mode settings.

MISCELLANEOUS ITEMS

65. SITC of 24 Port 10/100/1000 Network Switch

Standards	IEEE 802.3, 802.3u, 802.3x, 802.3ab
Ports	24 10/100/1000 Mbps RJ-45 ports
Cabling	Type CAT5e or better
LEDs System,	Link/Act 1-24, Gigabit 1-24
Certification	FCC Class A, CE

Operating Temperature 32 to 104oF (0 to 40oC)

66. SITC of CAT 5 cable

67. SITC of RG 6 Cable

Series 6, 18 AWG 1.02mm solid bare copper covered steel conductor, gas-injected foam polyethylene insulation, Duobond® II tape+ aluminum braid shield (60% coverage), PVC jacket (black)

68. SITC of 1" PVC pipe with accessories

69. SITC of 32U audio equipment rack with internal control wiring power sockets

70. SITC of Power conditioners

Power conditioner featuring Furman's revolutionary SMP+ technology. Furman's Series Multi-Stage Protection Plus (SMP+) circuit features exclusive Linear Filter Technology (LiFT) and Extreme Voltage Shutdown (EVS) and a high current TVZ-MOV.

ADDITIONAL OPTIONAL ITEMS

71. SITC of Full HD Video Conferencing System

Features	
Video Communication System	Totally Integrated, with six sites embedded simultaneous connecting capability in the same system using high bandwidth. Package should include Pan Tilt Zoom (PTZ) camera with Presets and Codec for simple installation with display device for use over RJ-45 IP network H.323 up to 10 Mbps or more speed & H. 320 ISDN BRI network up to 768 Kbps
Frame Rates:	30 frames per seconds @ 256 Kbps and above
Bandwidth	Up to 10 Mbps on IP (H.323) and 768 Kbps on ISDN BRI (H.320). PRI support instead of 6 x BRI will not be accepted.
	Communication rates up to 10 Mbps.
Video Standards & Camera Support For:	H.261, H.263, H.263+, H.263++, H.264 High Profile, MPEG-4 video H.239 (Video and Presentation Data support) H.239 Dual Video Stream Support
	Should have auto/manual focus and brightness with 10 x Zoom, +/- 100° degrees Pan and Tilt angle +/-25° .100 preset Positions with capability to operate in normal room illumination conditions support.
	Should have Live video resolution at QCIF (178 x 144 line), CIF (352 x 288), 4CIF (704 x 576,), WQCIF (256 x 144), WCIF(w288p), WCIF (w288p)(512 x 288), W432p(768 x 432), W480p(848 x480), W4CIF (1024 x576), 720p(1280x720), 1080i(1920x1080)
	Should be H.323 & H.320, standards complaint
	Video codec should support 4:3 & 16:9 format for display device
	Screen Layouts, Picture in Picture Video, Picture and Picture, Side By Side Support
	Support for SXGA for sending stills/graphics.
	30 frames per second at 256 Kbps.
	Support for H.281 Far End camera control (PTZ, Preset Position, Input selected)
	Codec should have integrated solution for showing content from PC/Laptop over IP/ISDN network along with VC session.
	Dual Video Streaming at H.264 (SXGA, WXGA, XGA, SVGA, VGA) & at H.263 (XGA, SVGA, VGA)
Camera	6mm 1/3 type CMOS

	Approximately 2.0 Megapixel (16:9)
	Focus – Auto/Manual
	Focal Length – f= 3.4 to 33.9mm (F1.8 to F2.9)
	Auto white balance, backlight, brightface function, VISCA output for 2 nd camera
Network Protocol	TCP/IP, UDP/IP, DHCP, DNS, HTTP, TELNET, SSH, SNMP, NTP, PPPoE, UPnP
Audio standards and protocols	Should have G.728, G.722, G.711, MPEG-4 AAC -LC Mono (14KHz @48/64/96 Kbps), MPEG-4 AAC -LC Mono (22KHz @96 Kbps IP Only), MPEG-4 AAC -LC Mono (22KHz @192 Kbps IP Only) audio coding support
	System must be equipped with Omni Directional Microphone with MIC On/Off
	Built in stereo echo canceller (On/Off) for audio frequency upto 14 KHz and Noise Suppressor and Auto Gain Control
IP Network features	IP Precedence/Type of Service (TOS) / UDP Shaping/ TCP/UDP Port Setting/ Auto Gatekeeper Discovery/ Real Time ARQ, Adaptive FEC, ARC, NAT
Other Interfaces	Video Output for HDMI(Video, Audio) x1, RGB x1
	AUX Video Input S-Video x 1, RGB x 1
	Memory Stick Slot x 1, Tablet Interface, Maintenance Interface
	Memory Stick Media - JPEG Saving/Loading; Configuration Saving/Loading; AV Recording
Network interfaces:	6 X ISDN BRI support
	1 x LAN / Ethernet (RJ-45) / 10 BASE T/100 BASE TX x2, ISDN Unit Interface x 1
Multi Location calling features:	Data sharing from any side
	Auto continuous presence layouts
	H.264, image clarity
	Up to 6 video with audio sites (H.320/H.323) and upto 10 sites after cascading a maximum of two codecs.
	Built in Streaming function
	Inbuilt Audio Video Recording in MPEG-4 format on portable memory/flash card

	Split design (Codec and main camera separate) for flexible installation
	Mix ISDN and IP up to maximum communication rate
	Data sharing from any side
	Auto continuous presence layouts
	H.264 High Profile, image clarity
	Up to 6 video with audio sites (H.320/H.323) and upto 10 sites after cascading a maximum of two codecs.
	Built in Streaming function
	Inbuilt Audio Video Recording in MPEG-4 format on portable memory/flash card. External Recording Device is not acceptable.
	Split design (Codec and main camera separate) for flexible installation
	Manual Lip Synchronization (On/Off)
Others	Support for Gatekeeper
	Other ITU Standard support interfaces like H.320, H.323, H.221, Bonding, H.225, H.281, H.225, H.233, H.234, H.235ver3, H.239, H.460
	Support for easy software upgrades through LAN or any other interface.
	Operating conditions: AC100-240V, 50 Hz - 60 Hz.
	Should come with all the power & communications cables necessary for the above features.
	Should come with easy to use hand held remote control
	System must have AES encryption for ISDN and IP calls.
	OEM should have direct country wide presence and support centers for previous 10 years
	Bidder to enclose tender specific authorization letter from OEM to bid for this tender, failing which shall summarily lead to rejection of bid.

72. SITC of 21.5" wide format, Full HD resolution, EMR technology Interactive Writing

Panel	LCD DISPLAY
Screen size	21.5-inch
Screen resolution	1920 x 1080 Full HD
Pixel pitch	0.248 x 0.248 mm
Colour depth	16.77 million colours
Contrast ratio	700:1
Maximum Brightness (cd/m ²)	200 cd/m ²
Response Time	5 ms
Viewing angle (horizontal / vertical)	170° / 160°
Backlight lifetime	50,000 hours
Video Cables	DVI-I to VGA (analog RGB) cable DVI to DVI cable
Video Interface	DVI-I video in/out

PEN & TABLET

Battery-free & cordless pen	Yes
Pen pressure levels	512 levels
Customisable pen buttons	2 side switches
Pen eraser	Yes
Pen tether	Yes
Pen stand	No
Tablet resolution	508 lpi
Coordinate accuracy	±0.5mm (center)
Tablet reading height	5 mm
Report rate	133 points/sec
Data interface	USB
Data cables	USB cable

GENERAL	
Adjustable stand (incline from vertical)	15° to 72°
USB 2.0 hubs	2 (1 on each side of the display)
OTHER	
Windows OS compatibility	7 / Vista / XP / 2000
Macintosh OS compatibility	OS X 10.4 or later

LIST OF APPROVED / ACCEPTABLE MAKES		
Sr. No	Item	Makes
AUDIO SYSTEMS		
1	Mixing Console : 24 Channel Digital Live Sound Mixer	Allen & Heath / Soundcraft / Bosch
2	Microphones:	Sennheiser / AKG / Bosch
	Digital Signal Processing:	
3	Networked Signal Processor / Touch screen programmable remote wall controller / Power Supply Unit	BSS / Bosch / Nexo
4	Full HD, Portable Control Panel	SONY / Apple
	Main PA:	
5	24-Channel Digitally Controlled Column loudspeaker / Wall mounting kit	Bosch / Duran / Tannoy / Renkus-Heinz
6	Dual 18" Arrayable Subwoofer / Stage Monitors / Control Room Monitors / Ceiling Speakers	Nexo / JBL / Bosch
7	Dual Channel Power Digital Amplifier	Bosch / Crown / Camco
	Cables and Accessories:	
8	Six Channel Active Direct Box, Line Mixer and Microphone / Line Splitter	ARX / Extron / Kramer
9	Line balancer and signal distributor	Kramer / RANE / Extron
10	professional audio CD player with iPod docking station	JVC /Dinon /Tascam
11	2 core shielded-24 AWG 27x38 high conductivity bare copper conductor cable	Extron / Belden
	VIDEO SYSTEMS:	
12	High Brightness 10,000 ANSI and High Performance 3-chip 0.95" DMD, Full HD (1920 x 1080) Projector	Digital Projection / Christie / Sony
13	146" x 260" Viewing Area in 16:9 Format Motorised Screen	Da-lite / Harkness Hall
14	3500 ANSI Lumens, True HD, single chip DLP Projector	Sony / Vivitek / Sanyo / Panasonic / NEC
15	52" x 92" Motorised Screen	Grand view / Liberty
16	46" and 40" Full HD 1080 picture quality with Edge LED backlight,	SONY / NEC / JVC
17	Professional Blu-ray & 500GB HDD Combo Deck Recorder	Tascam /JVC / Dinon
18	Five Conductor MHR - Mini High Resolution Cable	Extron
	PROFESSIONAL GRADE FULL HD VIDEO COLOUR CAMERA SYSTEM:	
19	Professional Grade Full HD Resolution Colour Video Camera/ Remote Control Unit/ Professional Grade Compact Audio Video Mixing Switcher	Panasonic / Sony
	AUDIO-VIDEO DISTRIBUTION SYSTEMS	
20	Presentation Digital Scaler and Digital Switcher/ 1:16 HDMI Distribution Amplifier / HDMI Transmitter /HDMI Receiver / HDMI Switcher/ Convertor etc	Extron / Kramer
	CONTROL SYSTEMS	
21	Touch Panel / Control System / Wireless Access Point / IR Cable / Universal Power / Motor Controller	AMX / Crestron

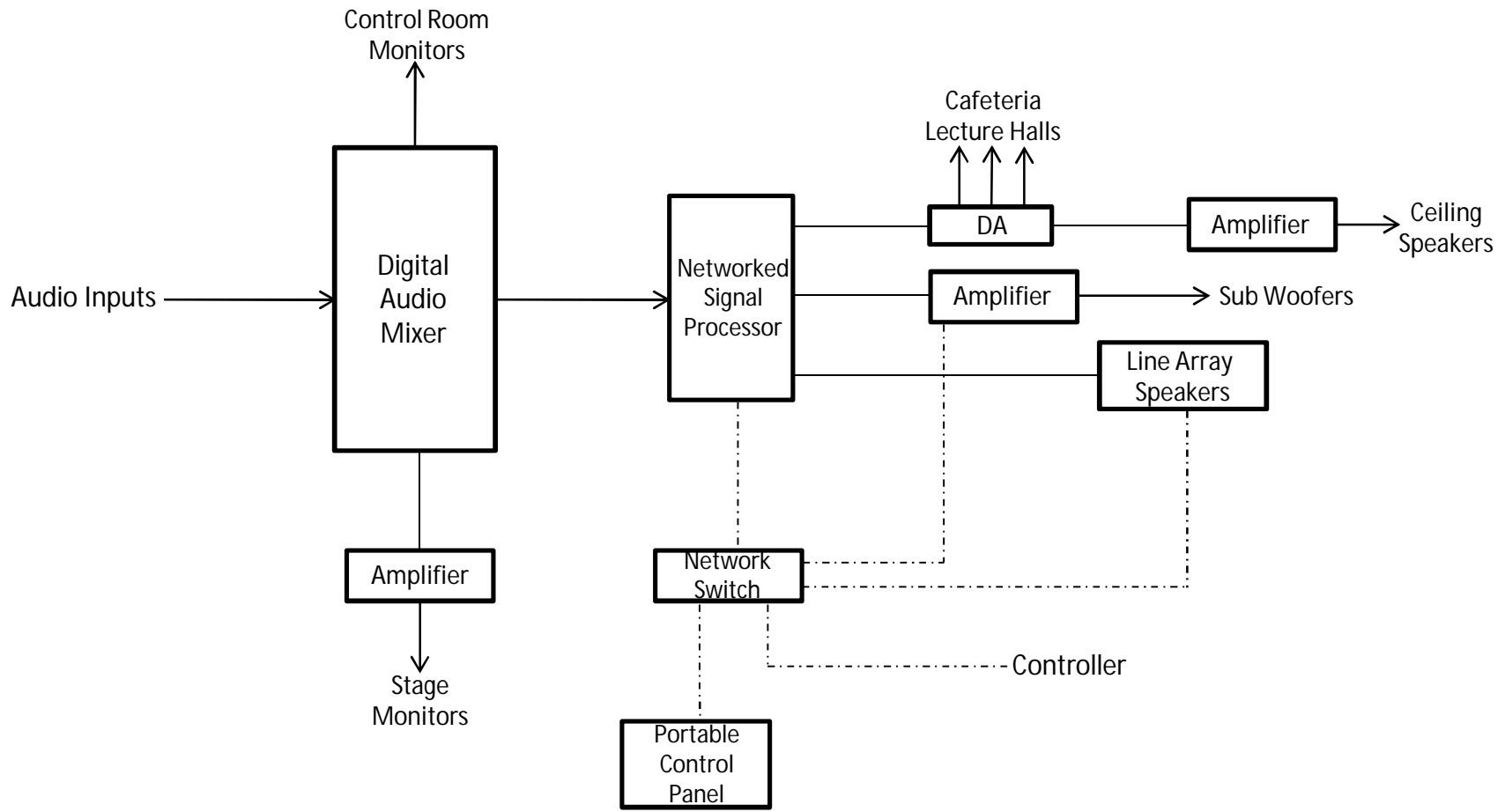
Sr. No	Item	Makes
	MISCELLANEOUS ITEMS	
22	24 Port 10/100/1000 Network Switch	CISCO
23	Power conditioners	Furman
	Additional Optional Items	
24	Full HD Video Conferencing System	Sony / Tandberg
25	Interactive Writing Panel	Reputed Make

BILL OF QUANTITY							
PROVISION OF FULL HD VIDEO AND AUDIO SYSTEMS ALONG WITH SYSTEM INTEGRATION IN MULTI-FUNCTION TRAINING FACILITY BUILDING AT IITM, PUNE							
Sr. No	Quantity in Figures and in Words	Description	Make	Model	Quantity	Unit Price in Figures and in words	Amount in Figures and in words
		AUDIO SYSTEMS					
		Mixing Console :					
1	1 No (One numbers only)	Supply, installation, testing and commissioning of 24 Channel Digital Live Sound Mixer consisting of 24 mono inputs, 4 stereo channels, 14 sub-group / aux busses, 4 FX busses, 4 Matrix busses, LRC Mix busses, 4 Stereo Lexicon Effects engines, Delay on inputs and outputs, 4 Mute Groups, AES in and Out, 4 analogue insert send - return loops, Harman HiQnet integration as required and as per detailed technical specifications attached			1.00		
		Microphones:					
2	3 Nos (Three numbers only)	Supply, installation, testing and commissioning of Professional dynamic mic for lead & backing vocals on stage with ON / OFF Switch as required and as per detailed technical specifications attached			3.00		
3	3 Nos (Three numbers only)	Supply, installation, testing and commissioning of Professional condenser mic for lead & backing vocals on stage as required and as per detailed technical specifications attached			3.00		
4	3 Nos (Three numbers only)	Supply, installation, testing and commissioning of 50 cm hypercardioid gooseneck microphone as required and as per detailed technical specifications attached			3.00		
5	2 Nos (Two numbers only)	Supply, installation, testing and commissioning of Wireless handheld microphone system, stationary receiver, handheld transmitter, condensor microphone element, microphone stand, LR6 AA battery, power supply and rack mount unit included as required and as per detailed technical specifications attached			2.00		
6	2 Nos (Two numbers only)	Supply, installation, testing and commissioning of Wireless Tie-Clip microphone system, stationery receiver, bodypack transmitter, Lavalier microphone, belt clip, LR6 AA battery, power supply and rack mount unit included as required and as per detailed technical specifications attached			2.00		
7	2 Nos (Two numbers only)	Supply, installation, testing and commissioning of Extremely rugged, studio boundary layer microphone with 3-pin XLR phantom power adapter. Industry standard stage floor mic as required and as per detailed technical specifications attached			2.00		
		Digital Signal Processing:					
8	1 Nos (One Number only)	Supply, installation, testing and commissioning of 12 analog mic / line input, 8 analog output, networked signal processor with fault - tolerant bus as required and as per detailed technical specifications attached			1.00		
9	1 Nos (One Number only)	Supply, installation, testing and commissioning of Touch screen programmable remote wall controller as required and as per detailed technical specifications attached			1.00		
10	1 Nos (One Number only)	Supply, installation, testing and commissioning of Power over Ethernet / 24 VDC Direct Powering for the Touch screen programmable remote wall controller as required and as per detailed technical specifications attached			1.00		
11	1 No (One Number only)	Supply, installation, testing and commissioning of Full HD, Portable Control Panel for configuration / programming and monitoring purposes as required and as per detailed technical specifications attached			1.00		
		Main PA:					
12	2 Nos (Two numbers only)	Supply, Installation, Testing & Commissioning of 24-Channel Digitally Controlled Column loudspeaker with each transducer having a Coaxial 4" woofer and triple 1" tweeters as required and as per detailed technical specifications attached			2.00		
13	2 Nos (Two numbers only)	Supply, installation, testing and commissioning of Wall mounting hinge kit for 24 element columns, includes both male and female hinge plates as required and as per detailed technical specifications attached			2.00		
14	2 Nos (Two numbers only)	Supply, installation, testing and commissioning of Ultra Long Excursion Dual 18" Arrayable Subwoofer as required and as per detailed technical specifications attached			2.00		
15	1 No (One Number only)	Supply, installation, testing and commissioning of Dual Channel Power Digital Amplifier, 3750W @ 2 ohm, 4500W @ 4ohm, 2100W @ 8ohm per channel as required and as per detailed technical specifications attached			1.00		
		Stage Monitors:					

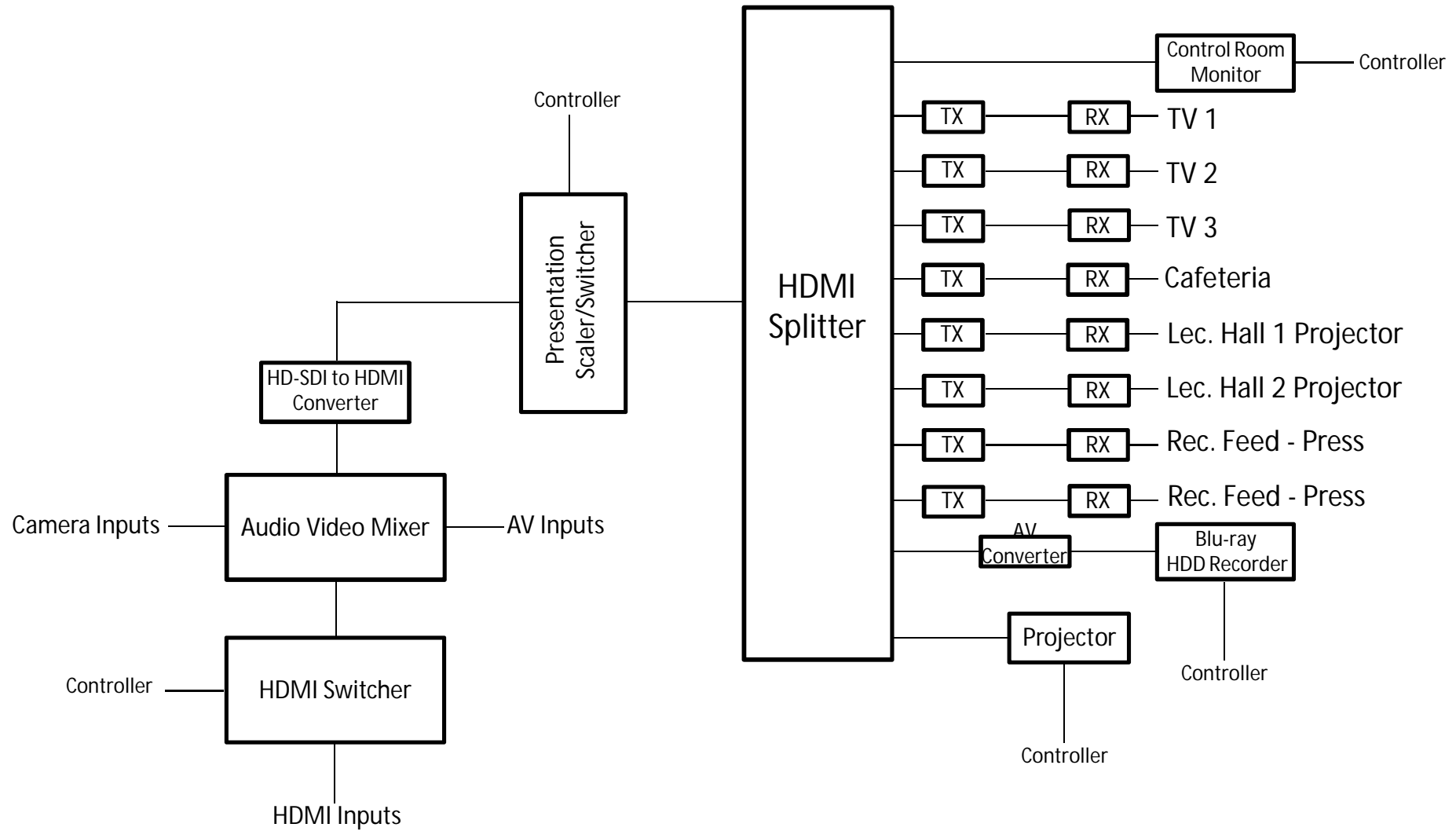
Sr. No	Quantity in Figures and in Words	Description	Make	Model	Quantity	Unit Price in Figures and in words	Amount in Figures and in words
16	2 No (Two Number only)	Supply, installation, testing and commissioning of 15" two-way dedicated floor monitor system with an 800 watt 2265H Differential Drive@ LF; 2452H, 4" voice coil compression driver, 50 x 90 waveguide; passive or bi-amplified operation; compact 30° symmetrical wedge enclosure; Black DuraFlex™ finish; heavy duty 16 gauge foam backed steel grille as required and as per detailed technical specifications attached			2.00		
17	1 No (One Number only)	Supply, installation, testing and commissioning of Dual Channel Digital Power Amplifier, 3000 W @ 2 ohm, 2100W @ 4 ohm, 1200 W @ 8 ohm per channel.Dual Channel Digital Power Amplifier, 3000 W @ 2 ohm, 2100W @ 4 ohm, 1200 W @ 8 ohm per channel as required and as per detailed technical specifications attached.			1.00		
		Monitors for Control Room:					
18	2 No (Two Number only)	Supply, installation, testing and commissioning of 2 way powered Studio Monitor for Control Room with wall mount kit as required and as per detailed technical specifications attached			2.00		
		Ceiling Speakers Systems:					
19	13 Nos. (Thirteen numbers only)	Supply, Installation, Testing & Commissioning of 25W / 100V Ceiling Speakers as required and as per detailed technical specifications attached			13.00		
20	1 No (One Number only)	Supply, installation, testing and commissioning ofDual Channel Power Amplifier, 775W @ 2 ohm, 650W @ 4 ohm, 300W @ 8 ohm per channel as required and as per detailed technical specifications attached			1.00		
21	2 No (Two Number only)	Supply, installation, testing and commissioning of Single auto transformer to provide impedance matching between an amplifier output and constant voltage loudspeakers.Single auto former to provide impedance matching between an amplifier output and constant voltage loudspeakers.as required and as per detailed technical specifications attached			2.00		
		Cables and Accessories:					
22	1 No (One Number only)	Supply, installation, testing and commissioning of Six Channel Active Direct Box, Line Mixer and Microphone / Line Splitter as required and as per detailed technical specifications attached			1.00		
23	1 No (One Number only)	Supply, installation, testing and commissioning of Line balancer and signal distributor for key board, guitars as required and as per detailed technical specifications attached			1.00		
24	1 No (One Number only)	Supply, installation, testing and commissioning of professional audio CD player with iPod docking station as required and as per detailed technical specifications attached			1.00		
25	200 Rmtr (Two Hundred Running metres only)	Supply, installation, testing and commissioning of Flameguard-FRLS PVC speaker cable for sub-woffers 4 core, 4 Sq. mm. 56 strands, each strand of 0.3 mm thickness as required and as per detailed technical specifications attached			200.00		
26	500 Rmtr (Five hundred Running metres only)	Supply, installation, testing and commissioning of 2 core shielded-24 AWG 27x38 high conductivity bare copper conductors, polyvinyl chloride insulation, bare copper spiral shield (92% coverage), in PVC jacket for connectivity to Digital Line Array Speaker Systems and for audio distribution as required and as per detailed technical specifications attached			500.00		
27	100 Rmtr (One hundred Running metres only)	Supply, installation, testing and commissioning of Professional multi-pair snake cable for audio connection between stage and control room audio mixer (16pair shielded) as required and as per detailed technical specifications attached			100.00		
28	1 Nos (One Package)	Supply, installation, testing and commissioning of Connectors XLR male & female pair x 50nos, 6.35mm TRS x 15 nos., Speakon x 4nos.as required and as per detailed technical specifications attached			1.00		
29	300 Rmtr (Three hundred metres only)	Supply, installation, testing and commissioning of Flame-guard-FRLS PVC speaker cable for ceiling speakers 2 core, 2.5Sq. mm. 56 strands, each strand of 0.3 mm thickness as required and as per detailed technical specifications attached			300.00		
30	10 Nos. of each length (One Package)	Supply, installation, testing and commissioning of 3 /5/ 10/ 15 metres Long Audio Signal Cable with XLR Male / Female Connectors as required and as per detailed technical specifications attached			10.00		
		VIDEO SYSTEMS:					
31	1 No (one number only)	Supply, installation, testing and commissioning of High Brightness 10,000 ANSI and High Performance 3-chip 0.95" DMD, Full HD (1920 x 1080) Projector, High-efficiency, dual-lamp system 350W, Lamps must be hot swappable while projector is powered on and in use, Projector must have Dust sealed engine, Motorized yellow notch filter, Automatic shut-off, Lens throw ratio 2.56 to 4.16HD and with Twin HDMI™ input card and for full upgradability for existing (2D) projectors to (3D) models.at a later date as required and as per detailed technical specifications attached			1.00		

Sr. No	Quantity in Figures and in Words	Description	Make	Model	Quantity	Unit Price in Figures and in words	Amount in Figures and in words
32	1 No (one number only)	Supply, installation, testing and commissioning of 146" x 260" Viewing Area in 16:9 Format Motorised Screen as required and as per detailed technical specifications attached			1.00		
33	2 No (Two number only)	Supply, installation, testing and commissioning of 3500 ANSI Lumens, True HD, single chip DLP Projector as required and as per detailed technical specifications attached			2.00		
34	2 No (Two number only)	Supply, installation, testing and commissioning of 52" x 92" Motorised Screen as required and as per detailed technical specifications attached			2.00		
35	2 No (Two number only)	Supply, Installation, Testing & Commissioning of Ceiling Mount Kit with all required cables like HDMI, Mini High Resolution Cable, Video and Power Cable with Face plates , PVC Conduits/ Casings and connectors as required and as per detailed technical specifications attached			2.00		
36	3 Nos (Three numbers only)	Supply, Installation, Testing & Commissioning of 46" Full HD 1080 picture quality with Edge LED backlight, Wireless LAN Ready, X-Reality™ picture engine, Live Colour Technology with Advanced Contrast Enhancer and with Internet Video as required and as per detailed technical specifications attached			3.00		
37	1 Nos (One number only)	Supply, Installation, Testing & Commissioning of 40" Full HD 1080 picture quality with Edge LED backlight, Wireless LAN Ready, X-Reality™ picture engine, Live Colour Technology with Advanced Contrast Enhancer and with Internet Video as required and as per detailed technical specifications attached			1.00		
38	1 No (One Number only)	Supply, installation, testing and commissioning of Professional Blu-ray & 500GB HDD Combo Deck Recorder with SD Card Slot as required and as per detailed technical specifications attached			1.00		
39	200 Rmtr (Two hundred metres only)	Supply, installation, testing and commissioning of Five Conductor MHR - Mini High Resolution Cable as required and as per detailed technical specifications attached			200.00		
40	1 Nos.(One Package)	Supply, installation, testing and commissioning of Face plates for 12 XLR x 2 nos, HDMI x 4nos, 1 RCA Video x 2nos, 1 XLR x 2 as required and as per detailed technical specifications attached			1.00		
		PROFESSIONAL GRADE FULL HD VIDEO COLOUR CAMERA SYSTEM:					
41	3 No. (Three numbers only)	Supply, installation, testing and commissioning of Professional Grade Full HD Resolution Colour Video Camera with PTZ and 18X Optical Zoom as required and as per detailed technical specifications attached			3.00		
42	3 No. (Three numbers only)	Supply, installation, testing and commissioning of HD-SDI Output card for the above mentioned Full HD Camera as required and as per detailed technical specifications attached			3.00		
43	1 No (one number only)	Supply, installation, testing and commissioning of Remote control unit as required and as per detailed technical specifications attached			1.00		
44	1 No (one number only)	Supply, installation, testing and commissioning of Professional Grade Compact Audio Video Mixing Switcher as required and as per detailed technical specifications attached			1.00		
		AUDIO-VIDEO DISTRIBUTION SYSTEMS					
45	1 No (one Number only)	Supply, Installation, Testing & Commissioning of Presentation Digital Scaler and Digital Switcher with balanced stereo audio as required and as per detailed technical specifications attached			1.00		
46	1 No (one Number only)	Supply, Installation, Testing & Commissioning of 1:16 HDMI Distribution Amplifier as required and as per detailed technical specifications attached			1.00		
47	12 No (Twelve numbers only)	Supply, Installation, Testing & Commissioning of HDMI over TP Transmitter as required and as per detailed technical specifications attached			10.00		
48	3 Nos (Three number only)	Supply, Installation, Testing & Commissioning of 19" Rack adaptor to mount the above mentioned Transmitter as required and as per detailed technical specifications attached			3.00		
49	12 Nos (Twelve numbers only)	Supply, Installation, Testing & Commissioning of HDMI over TP Receiver as required and as per detailed technical specifications attached			10.00		
50	2 No (Two numbers only)	Supply, installation, testing and commissioning of 4x1 HDMI Switcher as required and as per detailed technical specifications attached			1.00		
51	1 No (one Number only)	Supply, installation, testing and commissioning of HDMI to Video Convertor as required and as per detailed technical specifications attached			1.00		
52	2 No (two numbers only)	Supply, installation, testing and commissioning of 3G HD-SDI to HDMI Format Convertor as required and as per detailed technical specifications attached			2.00		
53	1 No (one Number only)	Supply, Installation, Testing & Commissioning of 19" Rack adaptor to mount the above mentioned HDMI convertor as required and as per detailed technical specifications attached			1.00		

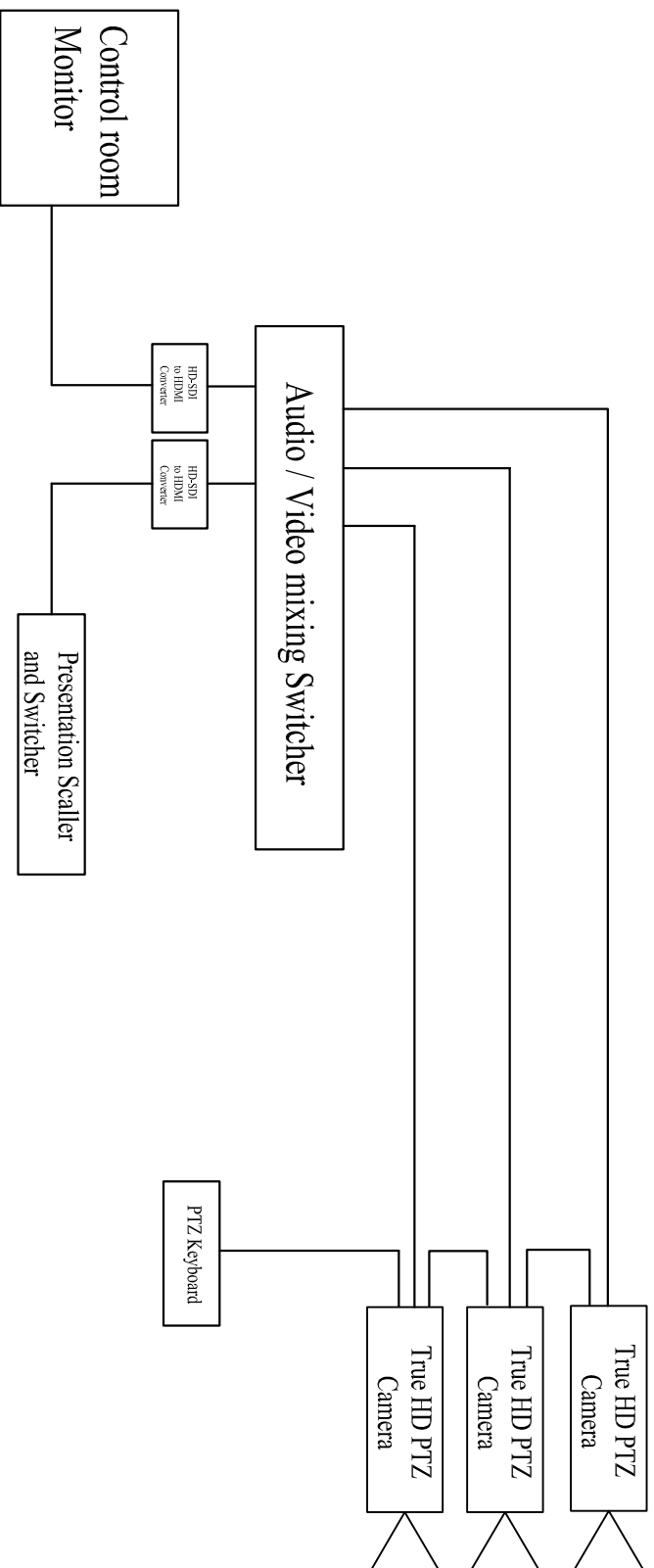
Sr. No	Quantity in Figures and in Words	Description	Make	Model	Quantity	Unit Price in Figures and in words	Amount in Figures and in words
54	3 Nos (Three number only)	Supply, installation, testing and commissioning of Four Pair STP (Shielded Twisted Pair) Data Cable-24 AWG as required and as per detailed technical specifications attached			3.00		
55	30 Nos (Thirty numbers only)	Supply, installation, testing and commissioning of HDMI Patch Cables of 0.5 metres each as required and as per detailed technical specifications attached			30.00		
56	10 Nos (Ten numbers only)	Supply, installation, testing and commissioning of HDMI Cables of 1.5 metres each as required and as per detailed technical specifications attached			10.00		
57	3 Nos (Three number only)	Supply, installation, testing and commissioning of HDMI Cables of 10 metres each as required and as per detailed technical specifications attached			3.00		
58	2 No (Two numbers only)	Supply, installation, testing and commissioning of HDMI Cables of 20 metres each as required and as per detailed technical specifications attached			2.00		
59	2 No (Two numbers only)	Supply, installation, testing and commissioning of HDMI Cables of 30 metres each with built-in power booster as required and as per detailed technical specifications attached			2.00		
		CONTROL SYSTEMS					
60	1 Nos (One number only)	Supply, installation, testing and commissioning of 8.4" Modero ViewPoint® Touch Panel with power supply adaptor and kick stand as required and as per detailed technical specifications attached			1.00		
61	1 Nos (One number only)	Supply, installation, testing and commissioning of NetLinx® Integrated Controller with power supply adaptor as required and as per detailed technical specifications attached			1.00		
62	1 Nos (One number only)	Supply, installation, testing and commissioning of NXA-WAP250G 802.11b/g Wireless Access Point as required and as per detailed technical specifications attached			1.00		
63	4 Nos (Four One number only)	Supply, installation, testing and commissioning of NetLinx IR Emitter Cable as required and as per detailed technical specifications attached			4.00		
64	1 Nos (One number only)	Supply, installation, testing and commissioning of Universal Power/Motor Controller, 20A (110/220VAC) as required and as per detailed technical specifications attached			1.00		
		MISCELLANEOUS ITEMS					
65	1 No (One Number only)	Supply, Installation, Testing & Commissioning of 24 Port 10/100/1000 Network Switch as required and as per detailed technical specifications attached			1.00		
66	300mtr (Three Hundred metres only)	Supply, Installation, Testing & Commissioning of CAT 5 cable as required and as per detailed technical specifications attached			300.00		
67	300 mtr. (Three Hundred metres only)	Supply, installation, testing and commissioning of Series 6, 18 AWG 1.02mm solid bare copper covered steel conductor, gas-injected foam polyethylene insulation, Duobond® II tape+ aluminum braid shield (60% coverage), PVC jacket (black) as required and as per detailed technical specifications attached			300.00		
68	1200 mtr (One Thousand two hundred metres)	Supply, Installation, Testing & Commissioning of 1" PVC pipe with accessories as required and as per detailed technical specifications attached			1200.00		
69	2 No (two numbers only)	Supply, Installation, Testing & Commissioning of 32U audio equipment rack with internal control wiring power sockets as required and as per detailed technical specifications attached			2.00		
70	2 No (two numbers only)	Supply, Installation, Testing & Commissioning of Power conditioners as required and as per detailed technical specifications attached			2.00		
		GRAND TOTAL					-
		Additional Optional Items					
71	1 No (One Number only)	Supply, installation, testing and commissioning of Full HD Video Conferencing System consisting of Data Solution Software for PC Connectivity including facility to connect 6 (1+5) centres on multi-point connectivity on IP/ISDN as required and as per detailed technical specifications attached			1.00		
72	1 No (One Number only)	Supply, installation, testing and commissioning of 21.5" wide format, Full HD resolution, EMR technology - Interactive Writing Panel(Podium for installing this unit to be provided by the Institute) as required and as per detailed technical specifications attached			1.00		



Audio Distribution



Video Distribution



True HD CCTV System